

**FAA CONFORMITY INSPECTION PROCESS, FORMS
AND RECORDS**

GUIDANCE MANUAL

REVISION A



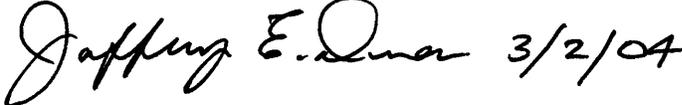
**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Transport Airplane Directorate**

FOREWORD

This manual has been prepared to provide guidance and improvement with conformity inspection processes to all Transport Airplane Directorate Personnel and its Designees. The manual includes guidance and references from existing FAA orders and policy memorandums. Any Transport Airplane Directorate employee and designee involved in Type Certification or Supplemental Type Certification should read and become familiar with the applicable provisions of this manual. Any recommendations or changes to this manual should be sent to Kurt Krumlauf ANM-108L, kurt.krumlauf@faa.gov.

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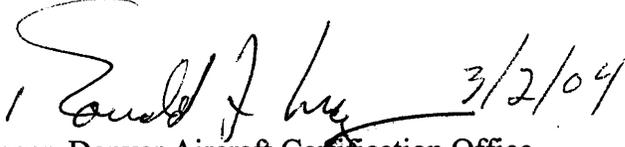
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SECTION 1. GENERAL INFORMATION AND INSTRUCTIONS FOR COORDINATING AND PROCESSING FAA FORMS

100. Purpose.

This guidance provides general information and instructions for coordinating, processing, and completing Request For Conformity's (RFC), Type Inspection Authorizations (TIA), Conformity Inspection Reports (CIR), Type Inspection Reports (TIR) and Supplemental Type Inspection Reports (STIR).

Acronyms

Abbreviations and Acronyms as used in this guidance are:

ACO – Aircraft Certification Office	MIDO – Manufacturing Inspection District Office
AR – Authorized Representative	ODAR – Organizational Designated Airworthiness Representative
ASI - Aviation Safety Inspector	PC – Production Certificate
ASE - Aviation Safety Engineer	PSCP- Project Specific Certification Plan
CAA – Civil Airworthiness Authorities	PSP – Partnership for Safety Plan
CIR – Conformity Inspection Report	RFC - Request for Conformity
CMO – Certificate Management Office	STIR - Supplemental Type Inspection Report
DAR - Designated Airworthiness Representative	STC - Supplemental Type Certificate
DMIR - Designated Manufacturing Inspection Representative	TAD – Transport Airplane Directorate
DAS – Designated Alteration Station	TC – Type Certificate
DOA – Delegated Option Authorization	TIA – Type Inspection Authorization
DO- Delegated Organization (ODAR, DAS DOA)	TIR – Type Inspection Report
ECO – Engine Certification Office	
JAA – Joint Airworthiness Authorities	

Internet references:

1. FAA Orders, Notices, Advisory Circulars, Job Aids, forms, Policy Letters Regulations and other related reference material can be down loaded at <http://www1.faa.gov/certification/aircraft/av-info/dst/default.htm>
 - FAA Order 8110.4 Type Certification
 - Form 8100-1 Conformity Inspection Record
 - Form 8120-10 Request For Conformity
 - Form 8130-3 Airworthiness Approval Tag
 - Form 8130-9 Statement of Conformity
 - Form 8110-26 Supplemental Type Inspection Report
 - Form 8110-5 Type Inspection Report for Part 23 and 25 aircraft
 - Form 8110-4 Type Inspection Report for Part 27 and 29 rotorcraft
2. FAA Conformity Inspection Process, Forms and Records Guidance Manual
http://www.nw.faa.gov/tad/la_mido/default.htm
3. Bilateral Agreements
http://www1.faa.gov/certification/aircraft/bilateral_agreements.stm
4. Electronic sample conformity inspection plan from Order 8100.9
<http://www2.faa.gov/certification/aircraft/av-info/dst/dds.htm>

101. Conformity Inspections.

a. Conformity inspections are conducted as part of two higher level processes and a conformity inspection may satisfy either of these processes. (Type Certification or Production Certification) Conformity inspections are generally required for the following purposes:

1. Conformity inspection on Prototype Parts, Installations on Aircraft/Engines/Propellers.
2. Conformity inspection on Test Articles and Test Set-ups.
3. Ground Inspections and Type Inspection Authorizations conducted on prototype aircraft/Engines/Propellers, major modifications and STC's.
4. Conformity inspection on production parts, assemblies or aircraft Engines/Propellers.
5. Engine and drive system tear down inspections
6. Bilateral conformity inspections performed for other CAA authorities.
7. In support of TSOA approval.
8. In support of PMA through Identity or Test and Computations.

b. Conformity Inspections are conducted during the manufacturing phase to:

1. Verify and provide objective documentation to the FAA that test articles, parts, assemblies, installations, functions and test setups conform to the design and attributes that are specified;
2. Provide the basis which enables the Manufacturing Inspector or designee to accept an FAA Form 8130-9, Statement of Conformity prior to turnover of the aircraft to Flight Test as required by FAR 21.33(a)(1) and 21.35(a)(3);
3. Provide part of the basis for granting a Production Certificate (upon issuance of the Type Certificate) per FAR 21.135 and 21.153.
4. Provide part of the basis for issuing a PMA under test and computation procedures 21.303(c)(4) and 21.303(d).
5. Provide part of the basis for issuing installation approval of TSOs articles under STC or TC;
6. Provide part of the basis which enables the Manufacturing Inspector or designee to issue and maintain an Experimental Certificate of Airworthiness for the prototype aircraft prior to flight as required by FAR 21.191, FAR 21.193, FAR 21.195, FAR 21.441;
7. Provide part of the basis that enables the Manufacturing Inspector to issue a Standard Certificate of Airworthiness on a prototype aircraft after issuance of a TC/STC/PC. In addition, to ensure any process/manufacturing concerns that are raised during the manufacturing/assembly process are corrected.

- c. **Phases** - There are three phases to the conformity inspection process. Phase I (one) is the process for planning the conformity inspections for Type, Production, and Airworthiness Certification; Phase II (two) is the process for conducting the conformity inspections; and Phase III (three) is the process for concluding the conformity inspection.

Phase I Planning - Guidance
<ol style="list-style-type: none"> 1. Conformity Inspection Process, Forms and Records Guidance Manual 2. FAA Order 8110.4 - Type Certification Process 3. FAA Industry Guide to Product Certification PSP/PSCP 4. AC 21-40 Application Guide for Obtaining a STC 5. Notice 8110.76 DER Designated Inspection Representative Process

Phase II Conducting- Guidance
<ol style="list-style-type: none"> 1. TAD Conformity Inspection Process, Forms and Records Guidance Manual 2. FAA Order 8110.4 - Type Certification Process 3. AC 21-40 Application Guide for Obtaining a STC

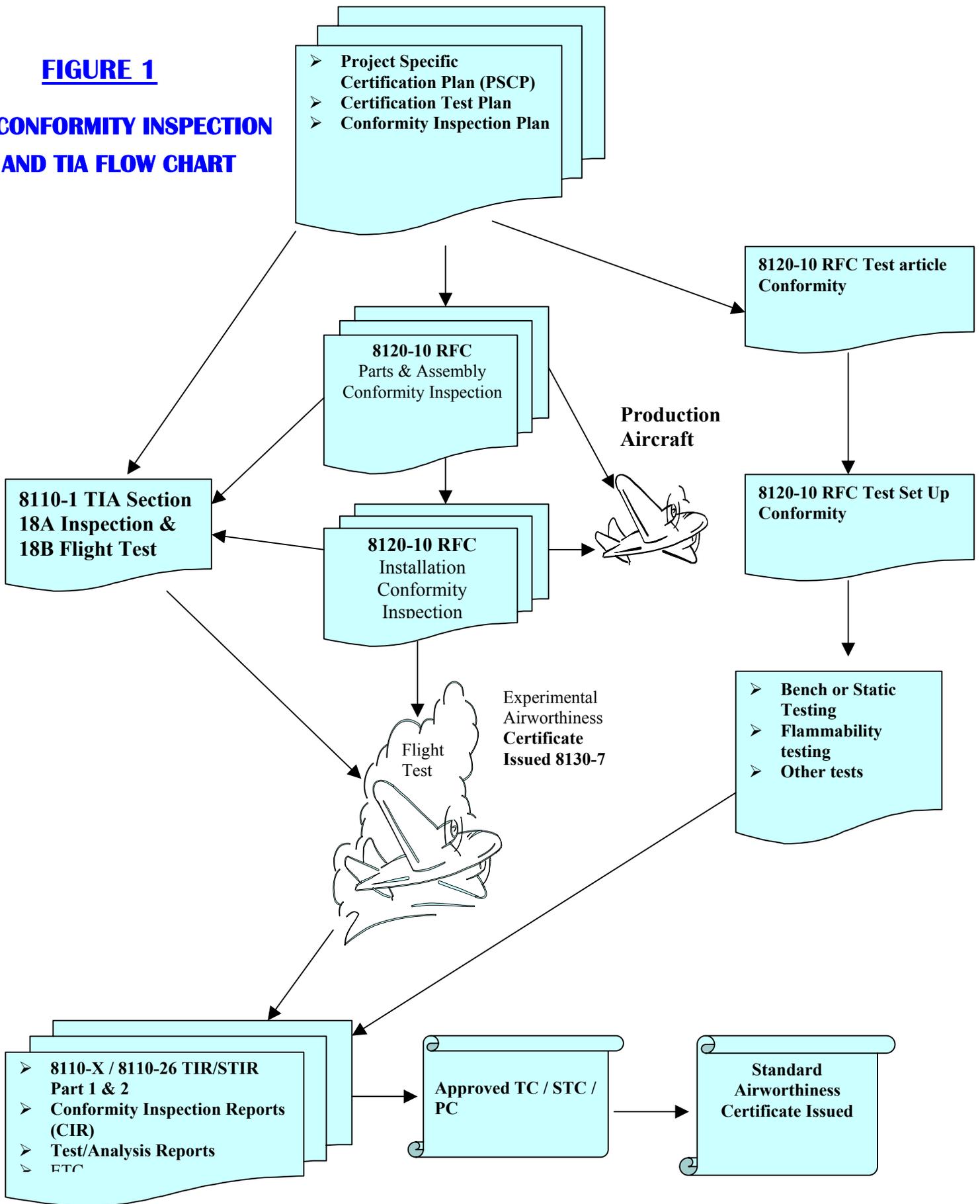
Phase III Concluding - Guidance
<ol style="list-style-type: none"> 1. TAD Conformity Inspection Process, Forms and Records Guidance Manual 2. FAA Order 8110.4 - Type Certification Process 3. AC 21-40 Application Guide for Obtaining a STC 4. FAA Order 8130.21B Procedures for completion and use of FAA Form 8130-3 Airworthiness Approval Tag

- d. **Conformity Inspection Plans (CIP)** - All TC and STC projects should have an approved CIP. Once the CIP is written by the applicant it is reviewed and approved the MIDO/CMO/ACO prior to any conformity inspections being requested. The MIDO Certification Specialist or assigned project ASI will guide the development of a conformity inspection plan with the applicant.
1. Criteria for conformity determination will be defined by the MIDO Certification Specialist, ACO, MIDO, and or CMO and outlined in the applicant’s CIP. When the applicant is inexperienced or the FAA has had problems with the applicant’s conformity process during type certification and a more extensive conformity maybe warranted as provided in Order 8110.4B, Chapter 5, paragraph 5-2.c. and paragraph 5-2.d. The ASI and Designees assigned to a project must become familiar with the conformity inspection plan in the initial stages of the project.

2. For STC projects the short CIP form in section 9 should be used (instructions for completing the plan are in section 9. A TC or Complex STC project may require the long version of the CIP shown in Appendix B. The conformity inspection plan should either become part of the PSCP or as a separate attachment. The CIP must address the information in paragraph e below. Content and scope of the CIP may vary depending on the complexity and size of a certification program.
 3. Two types of CIP formats are typically used. The short version should be used for simple non-complex STC or ATC projects and the long version should be used for complex STC or TC projects. Instructions and examples for CIPs are in Section 9.
 4. When a change in the project occurs the applicant, should update the CIP and send it to the FAA for concurrence.
- e. **Purpose of the CIP** – The CIP is to establish an up-front clear understanding of who, what, when, where and how conformity and airworthiness inspections will be accomplished. Conformity inspection plans should focus on; 1) verifying the conformity of critical and major characteristics of materials, parts, and assemblies; 2) evaluating processes to assure production of consistent and uniform products; and 3) observing tests of important functional parameters of systems, modules, components and completed products. Typical subjects that should be included in the plan are as follows: (Ref. Figure 1 Conformity decision chart)

1.	General description of the aircraft modification
2.	Definitions of terms used in the plan
3.	Brief introduction of certification program
4.	Applicant conformity inspections
5.	Who from applicant is authorized to sign the FAA form 8130-9)
6.	The use of designees and disposition of unsatisfactory conformities by the ACO and FAA DER's.
7.	FAA conformity inspection guidelines and exceptions
8.	FAA Conformity inspection identification and initiation of FAA form 8120-10 or other acceptable document
9.	FAA Conformity inspection tracking by applicant
10.	Applicant first article inspections
11.	Tooling inspection and control
12.	Material review prior to STC and production approval
13.	Software conformity inspections
14.	Description and location of facilities to manufacture and test the product
15.	Description and location for final assembly of product
16.	Supplier agreements with applicant
17.	Procedures for conducting and managing progressive conformity inspections.
18.	Conducting conformity inspections in foreign countries
19.	Returning aircraft to the original airworthiness certificate condition (i.e., standard, restricted, etc.)
20.	FAA conformity inspections of parts modified or replaced during flight test
21.	FAA conformity inspections for test setup
22.	FAA conformity inspections conducted on flight test simulator
23.	FAA conformity of spare parts
24.	Experimental certification of aircraft including location of flight testing

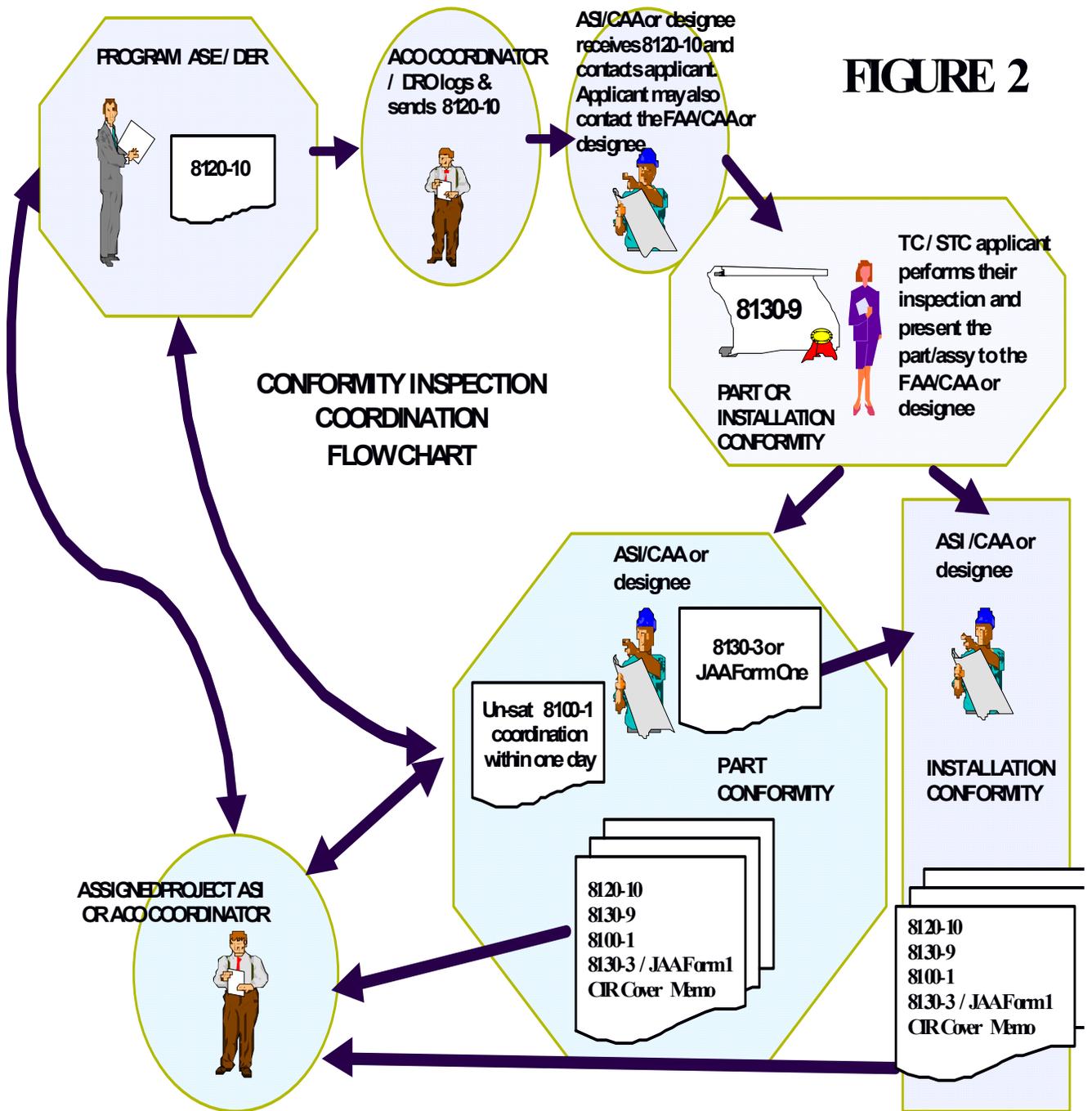
FIGURE 1
CONFORMITY INSPECTION
AND TIA FLOW CHART



102. RFC AND TIA COORDINATION PROCESS

- a. FAA Form 8120-10, Request for Conformity (RFC) and/or FAA Form 8110-1, Type Inspection Authorization (TIA) are internal FAA documents which are used by the ACO, MIDO, CMO or Delegated Organization to request inspections. The ASI or designee will not conduct a conformity inspection without receiving proper documentation. Designees should be informed that only the approved 8120-10 or 8110-1 with an assigned tracking number can be delegated for assignment.
- b. The MIDO/CMO (or Approved Organization) e.g. DAS, DOA, Boeing Designated Regulatory Office) is included in the coordination process for reviewing all RFCs and TIAs. After the ACO/MIDO/CMO review of the RFC and TIA a tracking number is assigned to each form. Only with this tracking number do the forms become FAA approved. Usually there is one FAA project number assigned to each project. It is common for numerous conformity requests to be issued under the same project. When this occurs, the MIDO/CMO will use a sequential tracking number for tracking each RFC. Before being released, the RFCs must be reviewed and approved by the ACO, MIDO, CMO, authorized DER, or Delegated Organization. Before being released, the TIA must be reviewed and approved by the ACO, MIDO, and or CMO
- c. The MIDO/CMO/ACO/DAS/DOA/AO will track the initiation and completion of the CIRs and TIAs. Each ASI should periodically follow-up with their designees to ensure there are no problems and that the CIR or TIR is completed on time. Another method of follow-up could be where the designees are instructed to provide a conformity status on a periodic basis to the ASI (the agreement should be in writing to prevent any miscommunication). Keep in mind the purpose of checking the status is to ensure that the designees are completing the required documentation in time for TC/PC approval. (Ref Figure 2 Conformity Inspection Coordination Process Flow Chart)
- d. Coordinating within the Directorate. When a conformity inspection is conducted within the certificating directorate, an FAA Form 8120-10 or FAA Form 8110-1 (with all pertinent information) will be coordinated directly between the Manufacturing Inspection Specialist, MIDO or CMO. The Automated Conformity Inspection Process (ACIP) is a computer program used to coordinate 8120-10s electronically within the Directorate. Instructions for using ACIP are in the ACIP database (Lotus Notes) and are not duplicated here. The ACO, MIDO and CMO at their discretion may approve a direct delegation process for certain applicants within the directorate. The direct delegation requirements are in FAA Order 8110.44.
- e. Coordinating outside the Directorate. When a conformity inspection is conducted OUTSIDE the certificating directorate, an FAA Form 8120-10 or FAA Form 8110-1 (with all pertinent information) should be forwarded by the Manufacturing Inspection Specialist or (project MIDO) to the Geographical MIDO being requested to conduct the conformity. Once the inspection has been delegated, it is the responsibility of the ASI or Designee assigned to the conformity inspection to contact the ASE/ASI project manager for resolving any questionable items. Conformity requests may be coordinated directly between district offices within the certificating Directorate.

FIGURE 2



Note: The process may vary between projects depending on the conformity plan and any agreements made between the applicant and the FAA. TIAs 8110-1 will follow the same process flow.

- f. TIAs will not be delegated to CAAs since there are no bilateral agreements to allow them to conduct TIA inspections and to complete a TIR/STIR. CAAs are not familiar with the TIA process and do not have the training or experience in completing a TIR/STIR. Only trained and experienced Designees can be delegated a TIA inspection. Designees must have prior experience in performing inspections on aircraft as applicable, such as witnessing the weight and balance of an aircraft, inspecting complex aircraft wiring installations, witnessing aircraft flight control and functional tests, and performing general airworthiness safety inspections.
- g. The approved RFC or TIA will be forwarded to the appropriate MIDO/CMO/CAA/Designee. The RFC can be sent by FAX, Email, or regular mail whichever way is most favorable to the project schedule.

103. COORDINATING 8120-10 RFCs WITH CIVIL AIRWORTHINESS AUTHORITIES (CAA)

- a. Attachment A provides a list of CAAs that have expressed a desire to perform conformity inspections on behalf of the FAA. RFCs should be delegated to the CAAs as outlined in attachment A.
- b. CAAs within JAA countries have requested RFCs to be sent at least 14 days or more in advance of the conformity inspection date. This will allow the CAAs sufficient time to plan and coordinate the inspection with the manufacturer. The applicant is responsible to provide the RFC information to the FAA several days in advance of the 14-day lead-time. The FAA needs enough time to review and coordinate the RFC with the JAA and the applicants should be informed of this requirement.
- c. If the CAA decides not to accept the conformity inspection, a designee should then be sent to perform the inspection. The Designee and ASI should follow the procedures in Order 8100.8 and submit a completed FAA Form 8130-13, Designee Geographic Expansion Authorization, and written along with notification to the CAA.
- d. Because of changes to their personnel, several JAA countries prefer that routine correspondence, such as conformity request, be addressed to an office without naming an individual. For letter format, see AIR-4's letter 99-03, dated July 1, 1999. Reference: <http://intranet.faa.gov/avr/air/air4/Memopage.html>

104. PARTS, INSTALLATION AND TEST SETUP CONFORMITY

- a. Only the appropriate number of articles needed for the type or production certification program should be conformity inspected. Conformity inspections should not be conducted as a way to circumvent production approval by the applicant. One should not begin part conformity until a completed FAA Form 8130-9 is provided. (Include procedure for signing 8130-9 by applicant or delegation to supplier/vendor per 8110.4) Reference [rs http://av-info.faa.gov/dst/reference.htm](http://av-info.faa.gov/dst/reference.htm) - [Orders](#)
- b. Parts installation and test setup conformity inspections can only be delegated to the Applicant's DMIR, Applicant's supplier DMIR (who is designated as a DMIR of the Applicant), DAR, ODAR or CAA. (See FAA Order 8100.8) Reference <http://av-info.faa.gov/dst/reference.htm> - [Orders](#)

- c. ASIs or authorized Delegated Organization must delegate the RFC to their designee by entering the designee name and initialing the RFC. Before performing conformity inspections, the designee must first verify the RFC has been delegated to them and assigned with a MIDO/CMO tracking number.
- d. **Part conformity** - When performing part conformity inspection the designee should only conform the quantity of parts listed on the RFC. If the applicant requests for an additional quantity of parts to be conformed then the FAA project manager should be consulted with.

NOTE: Only the quantity of parts/assemblies/ship sets that are needed and will be used to support the issuance of the TC/STC will be conformed. Back-up units not used in the test or installed on the aircraft, engine or propeller must be sent back to the supplier/vendor together with the original FAA Form 8130-3 tag that it was shipped with.

- e. **Installation Conformity** -When performing installation conformity inspection the designee should first verify the parts being installed have been FAA conformed. Evidence of FAA part conformity is by an 8130-3 tag or CAA equivalent marked “Conformity” in Block 13. If parts to be installed have not been conformed, the applicant should be made aware of this and the installation conformity should be stopped until a conformed part is available or the FAA project manager is contacted for further guidance. There may be occasions where part conformity may not be required and it may not be readily apparent. In this situation, the FAA project manager should be consulted with.
- f. **Test Setup conformity** - When performing a test setup inspection the designee should follow any special instructions on the RFC. If none are provided the test plan is to be reviewed to determine the section(s) requiring conformity inspection. When any unclear or ambiguous language is found in the test plan the designee must seek the advice of the ACO project manager or DER before proceeding. (Note: test plan may need to be revised by the applicant before proceeding). Parts used for certification tests are to be FAA conformed and evidence of part conformity is either an 8130-3 tag or CAA equivalent marked “Conformity” in Block 13. If there is no evidence of a conformed part being used in the test setup then write the discrepancy as an unsat on the 8100-1 and present the 8100-1 to the ACO project manager or DER for disposition.

NOTE: Some test setup conformities have been delegated to designees who were not experienced with test setup conformity but continued the inspection and the ACOs have noted unfavorable results from this. Designees that are not experienced with test setups and receive a RFC must contact their Advisor for further instructions. The RFC possibly will be re-delegated to another designee with experience.

- g. **Bilateral Airworthiness Agreements (BAA)** -Implementation Procedures (IP) require upon completion of all conformity inspections conducted on behalf of a requesting authority, the FAA or CAA will complete and return all documentation to the requesting authority, as notified. The airworthiness authority of the country in which the supplier is located will note all deviations from the requirements notified by the design approval applicant’s airworthiness authority on the conformity certification for the particular part. Any nonconformity described as a deviation should be brought to the attention of the FAA or the CAA for evaluation and disposition as to its effect on safety and the validity of the test under consideration. The FAA or CAA should receive a report stating the disposition required on each deviation before an FAA Form 8130-3 or JAA Form One is issued.

NOTE: Deviations noted in the FAA Form 8130-9 must be reflected in the FAA Form 8100-1 as unsatisfactory conditions.

105. PROCESSING DISCREPANCIES, NONCONFORMITY'S, AND DEVIATIONS

- a. For processing Discrepancies, Nonconformity's, and Deviations see Section 3, paragraph 301. The Conformity Completion Memo (ref section 8, paragraph 800) may be used for "routing" unsatisfactory conditions noted on an 8100-1 Conformity Inspection Record. The FAA Form 8100-1 should be sent to FAA Engineering or DER for disposition within one working day from discovery. The ASE or DER shall annotate the disposition on the FAA Form 8100-1. This copy shall be returned to the inspector or designee. The designee may also call the ASE project engineer or Authorized DER listed on the 8120-10 to obtain verbal or Email approval of the deviation. Verbal or Email engineering approval must be written by the designee on the Form 8100-1 along with the name and office of the ASE or the NAME AND DER NUMBER and date approval was granted. If Email is used a copy must be attached to the 8100-1.

Note: Some DERs have expressed concern with providing verbal approvals, in these situations the 8100-1 should be faxed to the DER for signature and Faxed back to the designee. Emails from the DER are also acceptable.

- b. Nonconforming parts must not be used unless it was determined by the project ASE or DER that the parts have no adverse affects for the certification test. Design deviations should be incorporated into the drawing as a "one part only" or the drawings should be revised to mirror the part configuration. "Repair" or "Use As Is" dispositions should not carry on into numerous production parts. The ASE or DER must also consider if the affects the nonconformance will have on airworthiness certification of the product after testing is completed. (Example: parts missing (part shortages) on an aircraft, engine, equipment, etc may be acceptable for a certification test but would not be acceptable for airworthiness certification. In these situations the ASE or DER can not authorized missing parts for products to be certified, if the type design requires the parts).

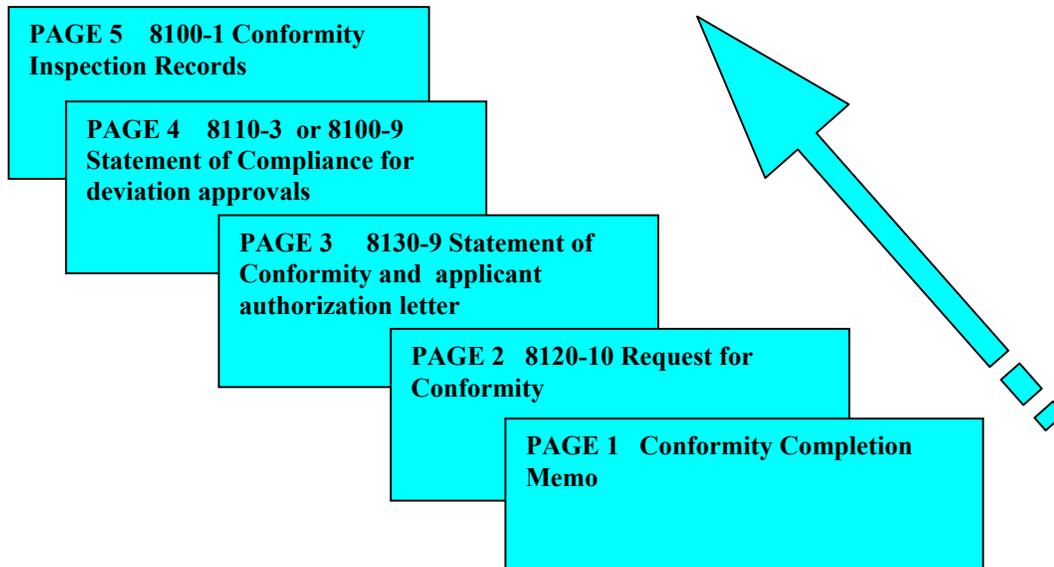
Note: Material Review Board (MRB) is a function of a quality control system used within an FAA production approval. The MRB system is not authorized to be used for type certification projects, however the FAA has traditionally recognized the benefits of using an established system as long as ALL deviations are coordinated with FAA engineering in accordance with FAA Order 8110.4.

106. Conformity Inspection Report (CIR) Review And Approval Process

- a. Completed CIR package must be processed in the following manner:
 1. Designees are required to send the original CIR report to their Advising ASI within 3 working days after completion of the conformity inspection. A longer time may be allowed if approved by the project ASI or ASE. (note: Timely submittal of the CIR is essential to make sure that the TC or STC project can proceed toward approval)
 2. The ASI (or Delegated Organization) will review the CIR to ensure the report is completed in accordance with the applicable guidance/instructions. The designee will correct any CIR report that does not meet the applicable guidance/instructions before being approved by the ASI. The advising ASI or delgated Organization will indicate their review and approval by signing the attached conformity completion memo.

3. The original approved CIR will be sent to the applicable FAA office as indicated in “Item 30” on the bottom of the 8120-10. CIRs may be faxed to the project manager in order to meet the project schedule, however the original CIR must be sent to the project manager for inclusion into the permanent TC/STC certification file.

b. Completed CIR package must be arranged in the following format:

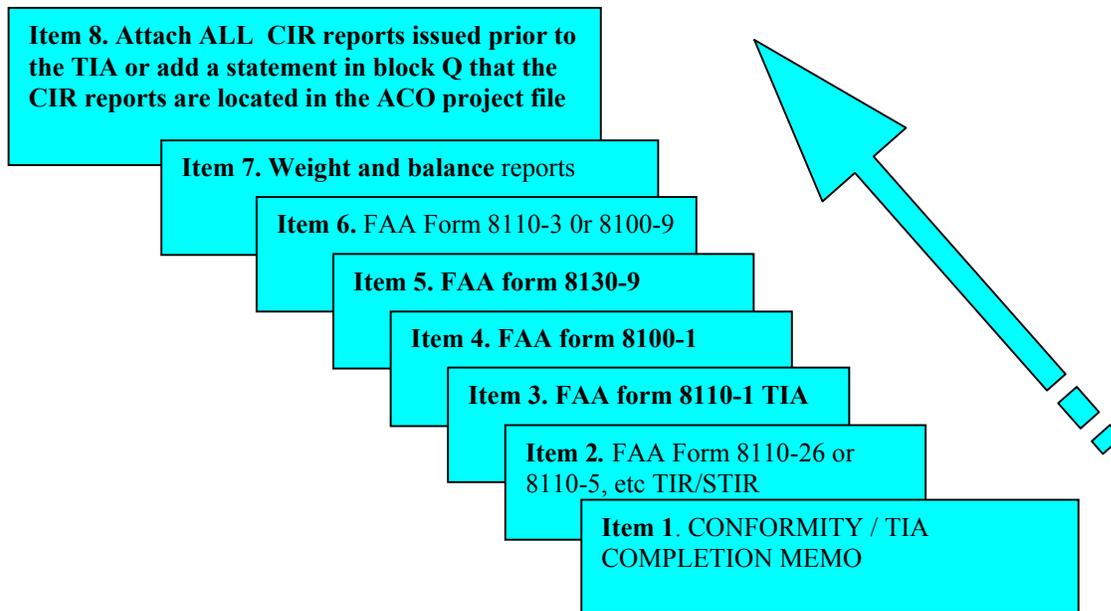


107. TIR/STIR REVIEW AND APPROVAL PROCESS

a. Completed TIR/STIR packages must be processed in the following manner:

1. Designees are required to send the original TIR/STIR report to their Advising ASI within 5 working days after completion of section 18A of the TIA. A longer time may be allowed if approved by the project ASI or ASE. Designees must contact the project engineer or ACO Coordinator to determine what CIR reports will be included in the TIR/STIR. The TIR/STIR must be approved by the MIDO/CMO within 5 working days after receipt from the designee. When all data, TIA inspections and tests have been completed satisfactorily and approved by the FAA, a TC or STC will be issued to the applicant.
2. The Advising ASI will review the TIR/STIR to ensure the report is completed in accordance with the applicable guidance/instructions. The designee will correct any TIR/STIR that does not meet the applicable guidance/instructions before the Advising ASI can sign the TIR/STIR.
3. The Advising ASI will indicate their review by signing the attached Conformity Completion Memo. The designees Advising ASI will print and sign block T of the TIR or STIR when the report is found to meet the guidance/instructions. The TIR/STIR will be sent to the ACO coordinator or senior ASI for final approval. The ACO coordinator or Senior ASI will review and approve the TIR/STIR by printing and signing block “U” of the TIR or block T of the STIR. For DAS’s the review and approval of the TIR/STIR must only be done by the Authorized Representatives inspector (AR) approved in the DAS manual. The same person cannot sign both the review and approval blocks, must be separate individuals.

b. Completed TIR/STIR package must be arranged in the following format:



108. RECORD RETENTION

The original CIR package and TIR/STIR are part of the Official TC/STC certification files located in the ACO. For production certification conformities the original CIR package is part of the Official PC certification files located in the MIDO or CMO. The original project records will be sent to the FAA archives, and the project will be closed. Designees should retain a copy of the CIR or TIR for a period of 2 years after the TC/PC project is closed.

109. CONFORMITY INSPECTION GUIDES

- a. Title 14 CFR, Part 21 Certification Procedures, Parts 23-35 Airworthiness Standards, and FAA order 8110.4 require fabrication methods to be able to consistently produce conforming parts. To attain this objective all methods requiring close control are to be covered by approved process specifications. All such process specifications are to be identified on the related drawings and thoroughly evaluated by the manufacturing inspector and ACO project engineer. Adequate information presented on drawings and specifications is necessary for products to be produced and inspected.
- b. In an effort to assist performing conformity inspections, several conformity inspection guides were developed. It is not intended for these guides be used as merely checklists or requirements but should be used as memory joggers that can affect how a conformity inspection is accomplished by the FAA inspector or designee. Should an answer be negative it will be necessary to note that on the conformity inspection report 8100-1 and request corrective action. (See Appendix C - F for the inspection guides)

SECTION 2 - INSTRUCTIONS FOR COMPLETING THE FAA FORM 8120-10 REQUEST FOR CONFORMITY

8120-10

ITEM 1	To: Enter the FAA office, CAA office or designee the conformity inspection is to be delegated to and the name of the ASI delegating the request (NOTE: When using log-in stamp, include FAA Log Number, Log-in Data, and who delegated to).
ITEM 2	Tracking Number: Enter the tracking number.
ITEM 3	<p>Part Conformity / Installation / Other: Determine the type of inspection to be performed and check the applicable blocks.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Part Conformity – this block should be check when parts or assemblies are to be conformed. <input type="checkbox"/> Installation – this block should be checked when conformity inspection of an installation of conformed parts or assemblies are on an aircraft. <input type="checkbox"/> Other – this block should be checked when test articles, test coupons, test setup, etc. are to be conformed. Also write the word test articles, test coupons, test setup, etc. in the line next to the block.
ITEM 4	Project Number: Enter FAA assigned project number per FAA Order 8110.4 or a unique project number may be generated by the MIDO/CMO.
ITEM 5	Date: Enter date form is initiated. (If the original 8120-10 is to be revised, submit another 8120-10, with the date of the original RFC along with a revision level (e.g. 07/30/2000 Rev A).
ITEM 6	Applicant Name: Enter the full name of the TC/STC applicant requesting the action (e.g. The Boeing Company, Western International Aviation). Note: This is not the place to enter the supplier's name.
ITEM 7(a)(b)(c)(d)(e)	Company Name: Enter the full name of the company/supplier manufacturing the prototype part/assembly or test article. Enter the address where the actual conformity inspection work is to be performed. Note: this is where you enter another country's name.
ITEM 8	Time/Date Available: Enter the approximate time and date when the inspections are schedule to take place. However, this time and date does not constitute a commitment by the FAA.
ITEM 9	<input type="checkbox"/> Applicant will contact FAA: Always place an x in this box
ITEM 10	Type Installation: Enter a brief description of the part, test article, or installation for which the conformity inspection is being requested. (e.g. fuselage panel installation, flight management computer installation, test article part. etc).
ITEM 11	Make / Model: Enter the make and model of the aircraft, engine, or propeller for which the design approval is being requested (e.g. McDonnell Douglas DC-9-82, Boeing 747-400, Robinson R44). This make and model should match those referenced on TCDS.
ITEM 12	Quantity: Enter only the quantity of parts, assemblies or installations necessary to complete the certification program .. (e.g. 1 shipset, 5 test samples, 4 wing assemblies) If more than one is necessary to complete the test program, then that quantity should be agreed upon in advance with the FAA manager and assigned ASI. For test articles, the quantities are usually called out in a test plan that is approved in advance by the FAA project manager. In these cases, write "per test plan" in this section.
ITEM 13	Requesting Document (P.O.) and Date: Some companies use purchase order references to send conformity inspection information to their suppliers and the FAA. However, in most cases, this section is not used, and an entry of "N/A" is appropriate.

8120-10 continued

ITEM 14	Design Data: (with Revision / Date): Enter a complete description of design data to be used in inspection of parts, installation, or test articles. References to software revisions, if not incorporated in production drawings are required. If there are multiple drawings, the information may be entered on a separate attached sheet with a note in this section that states, "see attached sheets(s)." For installation conformity inspections, an entry of a master drawing list is usually adequate without additional information. This information is very important to the inspector because it defines the design data and revision level the product is to be evaluated to. DO NOT ADD "OR LATER FAA APPROVED REVISION" Any design changes beyond the requested level listed on the 8120-10 will require the DAR/ODAR/DMIR/AR to write an unsat on the 8100-1 and request FAA/DER approval for the later revision change.
ITEM 15	Special Instructions: Enter any special instructions that may aid the inspector in conducting the inspection. (e.g., Test part not intended for use on an aircraft; Perform software conformity in accordance with RTCA DO-178A; Perform review process conformity in accordance with FAA Order 8110.4a.
ITEM 16(a)(b)	Contact: Enter the persons' name, title and phone number located at the site identified in Item # 7. This person is responsible for coordinating the conformity inspection with the FAA, CAA, and Designee. This contact usually corresponds with the information in item 7a.
ITEM 17(a)(b)	FAA Project Manager: Enter the name and phone number of the Aviation Safety Engineer (ASE) or Aviation Safety Inspector (ASI) who initiated the Form 8120-10 Request for Conformity. This ASE/ASI will answer any technical questions concerning the conformity request. It is also the person who the inspector should have review the deviations listed on the 8130-9 and the ASE or ASI who will receive and maintains the completed Conformity Inspection Report package. The Project Manager keeps these reports as part of the certification file.
ITEM 18	Remarks: Enter any applicable information that may help towards the timely completion of the conformity inspection. e.g. "applicant wishes to use DAR Mr. Bill Smith (ANM-999999-DAR) Van Nuys MIDO, to conduct conformity inspection" or "Applicant wishes to use the French DGAC to conduct the conformity inspection"
ITEM 19	<input type="checkbox"/> TIA Issued: Check this block when the request is being utilized to supplement a previously issued TIA. Defines forms needed at completion of inspection and forms that are issued and related to the project.
ITEM 20	<input type="checkbox"/> TIR Required: Check this block to have this conformity request and the conformity inspection report placed in the TIR when a TIA has been issued.
ITEM 21	<input type="checkbox"/> 8130-3 Tags Required: Check this block when the inspection articles will be moved or shipped from one location to another and evidence of the conformed article is desired. Also, check this block when it is desired to have evidence of a conformed article prior to an onsite test.
ITEM 22	<input type="checkbox"/> FAA Form 8100-1 Required: Must Check this block with every request.
ITEM 23	<input type="checkbox"/> FAA Form 8130-9 Required: Must Check this block with every request.
ITEM 24	Return Information: Enter "Please return this request for conformity along with the Conformity Inspection Report to (ENTER the person's name in item #22 along with the ACO Branch number) VIA (enter the MIDO/CMO office number)". Designees must submit the CIR to their Advising ASI for review and routing. Note: All Conformity Inspection Reports (CIRs) must be returned to the FAA Project Manager for retention in the TC/STC certification files.

SECTION 2



U.S. Department of Transportation
Federal Aviation Administration

REQUEST FOR CONFORMITY

A stamp may be used signed by advisor

1. Delegated To: Bob Self
Delegated by: Kurt Krumlauf

2. Tracking Number: LA990601L 6-7-99

3. Request for Conformity Inspection

4. Project No.: ST5522LA-T

- Part Conformity _____ 5. Date: 6-7-99
- Installation _____ Or 6-7-99 Rev A
- Other _____

A conformity inspection pertaining to the subject is requested for the following:

6. Applicant Name: ABC Aircraft Company

7a. Company Name: JJ Manufacturing

7b. Street: 2222 Spring Rd

7c. City: Long Beach 7d State: CA 7e. Zip: 90813

8. Time/Date Available: Approximately 11 June 1999 9. Applicant will contact FAA

10. Type Installation: Engine Mount

11. Make/Model: Gulfstream GV 12. Quantity: 2 only

13. Requesting Document (P.O.) and Date: N/A

14. Design Data: (with Revision/Date): ABC drawing 2445512-101 rev A dated 3-04-99

15. Special Instructions: Also review and evaluate the heat treat process in relation to the engine mount

16a. Contact: Jim Connelly QA manager
Eric Smith 16b. at: (562) 222-4212
(Phone Number)

17a. FAA Project Manager: Eric Smith ANM-140L 17b. Phone: (562) 234-8979

18. Remarks: Ensure all deviations listed on the 8130-9 are to be documented on 8100-1 and approved by FAA engineering or authorized DER.

- 19. T.I.A. Issued
- 20. T.I.R. Required
- 21. 8130-3 Tags or JAA Form One Required
- 22. FAA Form 8100-1 Required
- 23. FAA Form 8130-9 Required

24. Note: Please return this request for conformity with the FAA conformity document to Eric Smith ANM-140L
3960 Paramount Blvd Lakewood CA. 90712 through ANM-108L Kurt Krumlauf

SECTION 3 - INSTRUCTIONS FOR COMPLETING THE FAA FORM 8100-1 CONFORMITY INSPECTION RECORD

300. FAA Form 8100-1 Conformity Inspection Record

- a. All conformity inspections must be reported on the Conformity Inspection Record, FAA Form 8100-1. The Form 8100-1 should be written with enough detail to leave the FAA Aviation Safety Inspector (ASI) and FAA Aviation Safety Engineer (ASE) with an understanding of what type and level of inspections and examinations were made. The amount of detail written on Form 8100-1 should be determined by the type/complexity of the product and by the level of inspections and examinations that were made. The Form 8100-1 must have clear and concise information that will answer questions in a Type Inspection Report. A copy of 8100-1 may be given as evidence of conformity to a DER. The 8100-1 should be marked **COPY** in bold letters across the form.

Example: An engine mount being critical to airworthiness and safety would require a greater level of inspection and examination. Drawings, and specifications of an engine mount should be reviewed and examined in the detail required by FAA Order 8110.4A and these activities would be recorded on the 8100-1. You would also perform an actual check of materials, part, tools, manufacturing/inspection operations and planning being used and verify that the articles being produced are in fact being processed in accordance with the specifications and drawings. Each inspection and examination will be documented on the Form 8100-1.

301. Resolution of Discrepancies, Nonconformity's, and Deviations

- a. All satisfactory and unsatisfactory inspection conditions found or observed shall be recorded on FAA Form 8100-1.
- b. Any design change beyond the requested level listed on an 8120-10 will require the DAR/ODAR/DMIR/AR to write an unsat on the 8100-1 and request FAA/DER approval for the later revision change and then mark the 8100-1 sat after approval has been received.
- c. All **unsatisfactory** conditions must be resolved by having the applicant (manufacturer) to provide acceptable corrective action to the ASI, CAA or Designee. A Form 8130-3 or JAA Airworthiness Approval Tag must not be signed until all deviations have been approved by FAA engineering or DER. If the part is reworked the type design the ASI/CAA/Designee may sign the Airworthiness Approval Tag and clear the unsatisfactory condition on the 8100-1. (8110-3 and or a 8100-9 may be used in lieu of a DER or engineering AR signing on the 8100-1)
- d. All discrepancies or nonconformance that cannot be resolved by the applicant must be documented as an unsatisfactory condition on FAA Form 8100-1 and sent to the FAA Project ASE or ASI for evaluation and disposition or authorized DER/engineering AR. The name of the Project ASE, ASI, DER, or engineering AR can be found in the FAA Project Manager block on the Form 8120-10 or on the bottom of the first page of the TIA. The ASE, ASI, DER, or engineering AR concurrence or denial must be recorded in Block 13 on the Form 8100-1 along with his/her signature (8110-3 and or a 8100-9 may be used in lieu of a DER or engineering AR signing on the 8100-1). The existence and circumstances of any unsatisfactory conformity determination can be verbally or electronically (FAX/Email) passed to the ASE/DER/engineering AR within one (1) working day.

- e. Once action is presented to correct an unsatisfactory condition, the corrective action is entered in block 13 and a line is drawn from the number in the UNSAT column of Block 12 to the number in the SAT column next to the corrective action entry and initialed. The ASE/DER/ engineering AR approval must be recorded in Block 13 on the Form 8100-1 along with his/her signature. When verbal approval is obtained the inspector or designee will record on the Form 8100-1 the name of ASE, DER or ASI they talked to, a brief disposition and the time and date of the conversation along with their initials.

Note 1: In cases where the Project ASI has issued the Form 8120-10 the ASI can provide a disposition to an unsatisfactory condition if it does not affect design. (example: a DAR was delegated a RFC initiated by a project ASI. During the conformity inspection, the DAR recorded a discrepancy with production tooling and could not resolve the matter with the manufacture. The DAR would forward this information the project ASI who would review, evaluate, and disposition the condition.

Note 2: Some Delegated Organizations have a written process for using internal nonconformance forms to document discrepancies and to accept the corrective action. The Delegated Organization process must be approved in writing by the MIDO/CMO. The 8100-1 must reference the applicant's nonconformance/corrective action documentation tracking/control number in block 13 of the 8100-1. When engineering acceptance is indicated on the applicant's forms and the corrective action has been applied to the item being conformed, then the UNSAT can be cleared on the 8100-1.

- f. **Deviations** - Each deviation shown on the Form 8130-9 must be listed on the Form 8100-1. All deviations listed on the Form 8130-9 must be approved by an ASE or authorized DER assigned to the project. The DER must have prior authorization from FAA engineering to approve deviations listed on the Form 8130-9. The number of deviations must be entered in the UNSAT column of Block 12 on Form 8100-1. Once the deviations are approved by the ASE or DER, a statement of the approval is entered in block 13 and a line is drawn through the number of deviations listed in the UNSAT column of Block 12 and initialed. Then number in the SAT column on the next to the corrective action entry. The ASE or DER approval must be recorded in Block 13 on the Form 8100-1 along with his/her signature and office or designee number.
- g. **FAA/CAA Implementation Procedures (IP)** – IPs require upon completion of all conformity inspections conducted on behalf of the requesting authority, the FAA or CAA will complete and return all documentation to the requesting authority, as notified. The airworthiness authority of the country in which the supplier is located will note all deviations from the requirements notified by the design approval applicant's airworthiness authority on the conformity certification for the particular part. Any nonconformity described as a deviation should be brought to the attention of the FAA or the CAA for evaluation and disposition as to its effect on safety and the validity of the test under consideration. The FAA or CAA should receive a report stating the disposition required on each deviation before an FAA Form 8130-3 or JAA Form One is issued. Reference http://www1.faa.gov/certification/aircraft/BAA-BASA_Listing.stm

Note: Timely communication between the applicant the designee and the FAA is the key to an effective resolution of discrepancies.

SECTION 3 - 8100-1

BLOCK 1	PROJECT NUMBER, TIA / REQUEST DATE: List the FAA assigned project number along with date and MIDO Log No. of TIA or Request for Conformity, as applicable. NOTE: (The MIDO log number is listed on the FAA Form 8120-10 or TIA)
BLOCK 2	SHEET of SHEETS: Assign consecutive numbers for each page of the 8100-1 used to document inspection, list total number of sheets used. (e.g., Sheet <i>1</i> of 5 Sheets).
BLOCK 3	APPLICANT / MANUFACTURER: List the applicant and the manufacturer. (The applicant name is obtained from the 8120-10 or TIA. The manufacturer may be the one producing or responsible for the product).
BLOCK 4	BEGINNING DATE: List the date the inspection began.
BLOCK 5	ENDING DATE: List the date the inspection ended.
BLOCK 6	MODEL: If inspecting an aircraft list the make, model, and serial number and registration number. For an engine or propeller, list the make, model, and serial number.
BLOCK 7	INSPECTED BY: FAA/CAA Aviation Safety Inspectors must type or print name, signs, and enters office identification. Designees must type or print name, signs, and list their designee identification number.
BLOCK 8	ITEM NO. Assign consecutive numbers for each item inspected. When recording the corrective action entry must be recorded under the same item number as the unsatisfactory condition.
BLOCK 9	NOMENCLATURE OF ITEM INSPECTED: List the name or description of the part, appliance, drawing, document, specification, or name of the process being evaluated / inspected.
BLOCK 10	DRAWING, DOCUMENT, SPECIFICATION, ETC.: List the technical data that describes the item listed in block 9. (e.g. drawing number, document number, process specification number, etc.)
BLOCK 11	REVISION AND DATE: List the revision level and date of the technical data listed in block 10 or document revision level and date, as applicable.
BLOCK 12	NO. OF ITEMS DETERMINED SAT/UNSAT: List the number of items that were determined satisfactory or unsatisfactory. NOTE: (An item is a single article, part, or unit containing one or more dimensional characteristics or features.) Once an Unsat item is disposition or found Sat then draw an arrow from Sat to Unsat. This helps in expedite the review process.
BLOCK 13	COMMENTS: Enter comments in this block that will support the information listed in blocks 8 through 12: Type of inspection accomplished (visual inspection, review, process evaluation, material verification, dimensional inspection, finish check, compliance check, etc.). Destination of exported products, Buyer furnished equipment, parts process through manufacturer's maintenance facility, part new, newly overhauled, condition of part or assembly, etc.. Satisfactory and unsatisfactory conditions, corrective actions taken, serial numbers, restrictions, reference to other documentation utilized to determine conformity or airworthiness of product being evaluated/inspected. NOTE: (These comments should be brief and clear, avoid the use of acronyms or abbreviations, this information is the objective evidence of the action(s) taken by the inspector in determining compliance of the article to the type design / airworthiness).
BLOCK 14	CONTINUATION BLOCK: This block can be used to provide additional space if needed for blocks 1 through 13.

EXAMPLE OF HOW THE 8100-1 SHOULD BE COMPLETED. Show a sample of 8100-1 that addresses the example RFC.

SECTION 3

Conformity Inspection Record			1. Project Number: ST1000LA-T TIA/Request Date: 8-1-98		2. Sheet 1 of 2 Sheets	
3. Applicant: Aerospace Inc Manufacturer: Supplier - M&M machine co			4. Beginning Date: 9/5/98		5. Ending Date: 9/6/98	
6. Model Aero -100				7. Inspected By Bob Denver Bob Denver ANM10000		signature
8. Item No.	9. Nomenclature of Item Inspected	10. Drawing, Document	11. Revision and date	12. number of items determined		13. Comments
				SAT	I UNSAT	
1	Statement of Conformity	FAA Form 8130-9		1		From Applicant, ABC company
2	Heat Treat specification	Heat-9992	C 9/1-97	1		Reviewed and evaluated process specification
3	Drilling fixture	7142772	A 8/2/98		1	Pilot holes are not located per the drawing requirements.
Once an Unsat item is disposition or found Sat then draw an arrow from Sat to Unsat. This helps in expedite the review process.				1		Corrective Action: Pilot holes were re-located to the drawing requirements. ANM-120L John Doe John Doe
4	Drawing	7143999	n/c 7/2/98		1	Engine mount was made with hog out drawing calls for forging.
			A 9/6/98	1		Corrective Action: Per attached 8110-3 DER Sam Smith ANM-0001 hog out may be use for ground testing only.
5	Engine mount	7143999-101	n/c 7/2/98	4		Verified heat treatment of engine mounts Serial # 001, 002, 003, 004
				4		Inspected engine mount dimension
				4		Verified Shot peen process
6	Assembly outline			1		Reviewed planning documentation
7	8130-3 tag					8130-3 tag was issued on 9-6-98

FAA Form 8100-1

SIGNATURE

Add 8110-3 Email or verbal

SECTION 4 - INSTRUCTIONS FOR COMPLETING THE
FAA FORM 8130-9 STATEMENT OF CONFORMITY

8130-9

Section I	Section I: If the 8130-9 is used for part or test coupon, etc. conformity the applicant must enter "N/A" and the word "Parts only", "Test Coupon", "Test Article", or "Test Setup" (Leave Block 1-4 blank
BLOCK 1	MAKE: Enter the manufacturer of the aircraft i.e. Robinson, McDonnell Douglas Corporation, MDHI Etc. (Can be found on the 8120-10 or 8110-1)
BLOCK 2	MODEL: Designation of aircraft being modified / presented for testing (e.g. DC-9-83, MD-11). (Should match the model shown on the 8120-10 or 8110-1)
BLOCK 3	SERIAL No.: Factory Serial Number of aircraft or N/A (not applicable)
BLOCK 4	REGISTRATION No.: Registration number of aircraft or N/A
ITEM 1	FAA LOG #: Enter the MIDO log number from the 8120-10
ITEM 2	FAA PROJECT NUMBER: Enter the FAA project number from the 8120-10
ITEM 3	I hereby certify that: Enter the name and address of the company producing the Prototype part/assembly or test article.
ITEM 4	The letter X: Is entered in the box next to block "A". Next to the statement, "I have complied with Section 21.33(a), record drawing number, drawing nomenclature, drawing revision level, release date, and latest Engineering Order and release date . You can also use the open space below Item 5 for continuation.
ITEM 5	DEVIATIONS: List the deviations to the Type Design criteria. This includes Material Review action(s) that did not return the item to design specifications, or are not authorized by drawing changes or engineering order incorporation. (Note some applicants have preplanned deviations in their purchase documents or manufacturing planning. These preplanned deviations usually request a supplier or manufacturer to deviate from type design for a particular reason. These deviations must also be included on the 8130-9). Copies of the material review forms, planning, purchase documents or other documents must be attached. If no deviations to type design are present enter "NONE".
ITEM 6	SIGNATURE OF CERTIFIER: Printed name and signature of the applicant's representative within the quality (inspection) organization who possess the knowledge, skills and ability to ensure that company's inspections were done satisfactorily. If someone other than the applicant is signing this block, this person needs a letter from the applicant authorizing this person to sign on behalf of the applicant (reference FAA Order 8110.4a). Without the applicant's authorization letter the FAA/designee cannot accept the Form 8130-9 Statement of Conformity.
ITEM 7	TITLE: Position of the person in their company, signing in Item 6. Persons delegated by the applicant must also add the word "Delegated Agent" in this block.
ITEM 8	ORGANIZATION: Name of the organization of the person in their company, signing in Item 6. Persons delegated as an Agent by the applicant must use their company name not the applicant name. Use of the applicant name by the delegate agent leads to confusion.
ITEM 9	DATE: Date of signature entry in Item 6.

UNITED STATES OF AMERICA DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION																					
FAA LOG NUMBER <u>LA990522L</u>	STATEMENT OF CONFORMITY																				
PROJECT NUMBER <u>ST 3344LA-T</u>																					
SECTION I – AIRCRAFT <i>N/A (PARTS only), (Test Coupon), (Test setup or Test Article)</i>																					
1. MAKE Gulfstream	2. MODEL GV																				
3. SERIAL NO. 224	4. REGISTRATION NO. N12232																				
SECTION II – ENGINE																					
1. MAKE	2. MODEL																				
3. SERIAL NO.																					
SECTION III – PROPELLER																					
1. MAKE	2. HUB MODEL																				
3. BLADE MODEL	4. HUB SERIAL NO.																				
5. BLADE SERIAL NO.																					
SECTION IV – CERTIFICATION																					
I hereby certify that: ABC Aircraft Company 1897 Jamboree rd. Irvine Ca 92612																					
A. I have complied with Section 21.33(a)																					
<input type="checkbox"/>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">DRAWING NUMBER</th> <th style="width: 10%;">REV</th> <th style="width: 10%;">DATE</th> <th style="width: 40%;">DESCRIPTION</th> <th style="width: 10%;">QTY</th> </tr> </thead> <tbody> <tr> <td>91955-001</td> <td>B</td> <td>10-15-99</td> <td>wire harness</td> <td>3</td> </tr> <tr> <td>205866-002</td> <td>N/C</td> <td>10-08-99</td> <td>Axial Fan</td> <td>2</td> </tr> <tr> <td>345987-003</td> <td>C</td> <td>8-9-99</td> <td>attach fittings</td> <td>4</td> </tr> </tbody> </table>	DRAWING NUMBER	REV	DATE	DESCRIPTION	QTY	91955-001	B	10-15-99	wire harness	3	205866-002	N/C	10-08-99	Axial Fan	2	345987-003	C	8-9-99	attach fittings	4
DRAWING NUMBER	REV	DATE	DESCRIPTION	QTY																	
91955-001	B	10-15-99	wire harness	3																	
205866-002	N/C	10-08-99	Axial Fan	2																	
345987-003	C	8-9-99	attach fittings	4																	
<input type="checkbox"/>	B. The aircraft described above, produced under type certificate only (FAR 21 Subpart F), conforms to its type certificate, is in a condition for safe operation, and was flight checked on _____ (Date)																				
<input type="checkbox"/>	C. The engine or propeller described above, presented herewith for type certification, conforms to the type design therefor.																				
<input type="checkbox"/>	D. The engine or propeller described above, produced under type certificate only (FAR 21 Subpart F), conforms to its type Certificate and is in a condition for safe operation. The engine or, if applicable, the variable pitch propeller was subjected by the manufacturer to a final operational check on _____ (Date)																				
Deviations: Non conformance TAGS NT992345 NT992346 NT992347																					
Note: additional information for item 4 goes here																					
SIGNATURE OF CERTIFIER: <u>Sally Seashell</u> TITLE: Senior Quality Manager or Delegated Agent																					
ORGANIZATION: ABC Aircraft Company or "Honeywell" Supplier to ABC company DATE: 10-9-99																					

SECTION 5 - TYPE INSPECTION REPORT (TIR) FAA FORM 8110-5 INSTRUCTIONS

500. Type Inspection Report

- a. A TIR will be written using the instructions below this form is to be used to record the results of conformity inspections and investigations of prototype or modified airplane presented for type certification. Many inspections and tests will be witnessed or participated in which are not covered by questions listed herein. All such inspections, tests, and changes to the product and/or type design data resulting from those inspections and tests must be recorded and made a part of this report.
- b. The TIR is completed by the designee within 5 working days after completion of section 18A. (Note the information provided in the TIR must be satisfactory and complete before the ACO and MIDO can approve the TC or STC).
- c. The original and a copy of the Type Inspection Report (TIR) Part 1 will be sent to the ASI assigned to the project for review.
- d. For every TIA or TIA supplement, a TIR must be completed.
- e. The Program ASI will review the TIR Part 1 to ensure compliance with the TIR instructions. The Program ASI signs the “Report reviewed by block”, and retains a copy in their project file. The ASI may have an agreement with the designee to maintain a copy of this file for the MIDO. Any agreements with the designee should be in writing.
- f. The ASI will send the original TIR Part 1 to the ACO coordinator (or other authorized person) for approval. The ACO coordinator will sign the “Report approved by block” after the TIR it is found acceptable.
- g. Once the TIR is approved, the ACO Coordinator will send the TIR Part 1 to the FAA Flight Test Branch and they will complete the TIR report with Part 2.

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BLOCK A	NUMBER: Enter the Type Inspection Authorization (TIA) number including the TIA supplement numbers.
BLOCK B	DATED: Enter the date that the TIA was approved.
BLOCK C	NAME: Enter the name of the company or individual that is applying for the Type certification.
BLOCK D	ADDRESS: Enter the location of the applicant.
BLOCK E	MODEL: Enter aircraft model and series (e.g. DC-9-83, MD-11, B747-200).
BLOCK F	DATA SHEET NO.: Enter the number from the original FAA type certificate data sheet. The number can be found on the TIA. (e.g. A6WE).
BLOCK G	DATED: Enter the date the type data sheet was issued.
BLOCK H	SERIAL NUMBERS: Enter the serial number(s) of the aircraft used for the FAA test (note: there normally is more than one aircraft used in FAA certification test and all aircraft must be listed).

SECTION 5 / PAGE 1 of 8110-5

BLOCK I	REGISTRATION MARKS: Enter the matching registration marks of the aircraft serial numbers shown in block H.
BLOCK J	FAR PART: Enter the 14 CFR part that the aircraft is to be certified under. The number can be found on the TIA. (e.g. part 25, part 23)
BLOCK K	DATED: Enter the date that the certification basis was established.
BLOCK L	AMENDMENTS: Enter any 14 CFR amendments that were included in the certification basis. The amendments can usually be found on the TIA (e.g. Amendment 25-49).
BLOCK M	NAME: Enter the name of the company or individual responsible for the modification (usually the same as the applicant).
BLOCK N	ADDRESS: Enter the location where the company or individual performing the modification is located.
BLOCK O	DESCRIPTION OF ALTERATION: Provide a general description of the alteration(s) that is made to the aircraft. The description can be found in the TIA.
BLOCK P	PAGES IN REPORT: List the page numbers either submitted in or omitted from the TIR report. Pages containing only questions found not applicable to the certification project may be omitted. Indicate by page numbers in this block the pages submitted (or pages omitted if more convenient) in this report.
BLOCK Q	ATTACHMENTS: List a description of the attachments included in the TIR report (e.g., Form 8100-1, Form 8130-9, Form 8130-3, weight and balance report).
BLOCK R	INSPECTIONS CONDUCTED BY: When more than one inspector participates in completing a TIR report, each inspector will type or print their name and title and enter their DMIR/DAR number or FAA office number. Each inspector will also initial adjacent to their name and next to the answers and determinations they provided within the report.
BLOCK S	PREPARED -DATE -BY: Enter the date the report was completed and type or print the name, title, DMIR / DAR / FAA office number and sign above the typed name and title.
BLOCK T	REVIEWED - DATE - BY: Enter the date the report was reviewed and type or print the name, title, and office number of the FAA inspector reviewing the report. Sign above the typed name and title (Note: local FAA office policy will determine who is responsible for reviewing the report).
BLOCK U	APPROVED -DATE -BY: Enter the date the report was approved and type or print the name, title, and office number of the Senior ASI approving the report. Sign above the typed name and title. (Note: For a DAS project only an authorized and qualified inspection AR noted in the DAS manual can approve the report).

PAGE 2 Table of Contents only

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BLOCK A	INSPECTION FROM - TO: Enter the dates when the inspection was started and completed.
BLOCK B	WHERE INSPECTION CONDUCTED: Enter the location where the inspection was conducted. This is usually the same location of applicant. When more than one location is applicable use the location of the company or individual.
BLOCK C	FORMS SUBMITTED BY APPLICANT: Check the applicable block and enter the date the forms were completed.
BLOCK D	DOES THE APPLICANT'S INSPECTION SYSTEM ASSURE THAT THE MATERIALS AND PARTS USED IN THE PROTOTYPE AIRCRAFT ARE IN CONFORMITY WITH APPROVED DATA: Answer with either a yes or a no. If a no answer is entered then a complete and concise statement must be made in the remarks section under block I.

SECTION 5 PAGE 3 of 8110-5

BLOCK E	DOES THE APPLICANT MAINTAIN RECORDS OF THE INSPECTION CONDUCTED OF THE PROTOTYPE TO SUBSTANTIATE HIS/HER STATEMENT OF CONFORMITY: Answer with either a yes or a no. If a no answer is entered then a complete and concise statement must be made in the remarks section under block I.
BLOCK F	NUMBER OF FAA CONFORMITY INSPECTIONS - CONDUCTED - RECORDED IN PROJECT FILE...: This number is taken from block 12 of ALL the Form 8100-1 inspection records. This also includes the number of inspections recorded for the part and installation conformity inspections.
BLOCK G	NUMBER OF UNSATISFACTORY ITEMS RECORDED IN THIS REPORT: Enter the number of unsatisfactory inspection items recorded in the report and add a statement in the remarks under block I.
BLOCK H	DESCRIPTION OF AIRCRAFT INSPECTED: Provide a description of the type of aircraft inspected including the model number (e.g. DC-9-87, MD-11).
BLOCK I	REMARKS: Add any significant or important information that will thoroughly explain the findings in the report.

PAGE 4 of 8110-5 ACTUAL EMPTY WEIGHT AND CENTER of GRAVITY LOCATION:

BLOCK A	1.1 THROUGH 1.3.3: The applicant's weight and balance report may be used in lieu of the weight and dimensional page of this form provided it contains all the information requested. If the applicant's report is not available then enter all the required information.
BLOCK B	TIA FINDINGS: "Record results of investigations and special tests, such as static, endurance, operational, pressure, functional, and reliability, conducted or witnessed by the manufacturing inspectors or DMIR/DAR on the basis of instructions contained in item 18 of the TIA. Identify by TIA item number and item description; results to follow directly below the item description".

SECTION 5 REQUIREMENTS SECTION: PAGE 5 – 11; 13-24; & 28 –31 of 8110-5

BLOCK A	<p>YES / NO / ACTION REQUIRED: Answer the questions on the following pages by checking the appropriate "YES" or "NO" column. When action is required to render the item acceptable, check the "ACTION REQ" block. Use additional pages as necessary to list the unsatisfactory conditions found during the inspection with reference to any communication or conformity inspection reports relative to the item. Number the additional pages with the page number on which the question appears plus a letter, i.e., 10a, 10b, etc. Identify the unsatisfactory condition by using the related item number as it appears on the Form 8110-5. When listing more than one item, list the items in numerical order with sufficient space between each entry to note the corrective action taken.</p> <p>When the item has been re-inspected, cross out the previous "NO" answer and check the "Yes" block. This will be done for each inspection until the item is acceptable and will serve as a record showing the number of times the item was inspected prior to acceptance.</p>
BLOCK B	<p>2.10: List, by specification or drawing number, any special process or fabrication method used that is not covered in this section.</p>

PAGE 12 SECTION 5.0 FLIGHT CONTROL SYSTEM :

BLOCK A	<p>AT BEGINNING OF FAA OFFICIAL TEST: Enter the measurements of the flight control systems at the beginning of the FAA official flight test. The applicant's flight control operational form(s) may be used in lieu of the information requested if it is considered that it is more pertinent to the system being checked. When other data is used, it should be included as an attachment to the TIR report.</p>
BLOCK B	<p>AT SATISFACTORY CONCLUSION OF FAA OFFICIAL FLIGHT TEST: Enter the measurements of the flight control systems at the conclusion of the FAA official flight test. It should be noted that during the FAA official flight test that the manufacturing inspector should monitor and record any adjustments that the applicant makes to the flight control system and record the results of the inspections in the TIR report.</p>

PAGE 25, 26, and 27

☞ Due to the differences in the minimum equipment requirements of FAR 23 and 25, the following list of instruments and equipment items is provided as a means of recording the inspection of these items. The FAR requiring the particular item is indicated beside the item in the applicable FAR column. The answers to the following questions should be noted in the appropriate column.

BLOCK A	<p>IS ITEM INSTALLED AND MARKED IN ACCORDANCE WITH APPROVED DATA: Enter "YES" in this block beside the applicable items if the item is installed and marked in accordance with FAR 23.1301, 23.1541, 25.1301, 25.1541) If the item(s) are not installed and marked in accordance with approved data then enter "NO" in the applicable block. Leave all blocks blank that are not applicable to the certification project.</p>
BLOCK B	<p>DOES A GROUND OPERATIONAL CHECK SHOW THAT THE ITEM OPERATES SATISFACTORILY: Enter "YES" in the applicable block if the item(s) operates satisfactorily. If the item(s) does not operate satisfactorily then enter "NO" in the applicable block. Leave all blocks blank that are not applicable to the certification project.</p>
BLOCK C	<p>IS ACTION REQUIRED AS A RESULT OF THIS INSPECTION: Enter "Yes" if corrective action is required to render the item(s) satisfactory to the FAA. Then enter "See Form 8100-1 attachment [enter attachment number] next to the appropriate item description. Initial the below the "YES" and cross out the YES when the 8100-1 has been disposition by FAA engineering.</p>

Section 5

**TYPE INSPECTION REPORT
Part 1 – Airplane Ground Inspection**

INSTRUCTIONS

This form is to be used to record the results of conformity inspections and investigations of prototype or modified airplane presented for type certification. Many inspections and tests will be witnessed or participated in which are not covered by questions listed herein. All such inspections and tests and changes to the product and/or type design data resulting there from must be recorded and made a part of this report.

This form includes references to applicable FAR. Some sections are interrelated, and future FAR revision may modify the requirement of an item. It is essential that the specific FAR's applicable to the airplane involved be reviewed to insure a complete and effective inspection. When this form is used in conjunction with a program that involves an airplane being certificated under a CAR, cross out the FAR reference and enter the equivalent CAR reference.

All entries must be clear, concise, and self-explanatory. Answer questions in this report by checking the appropriate "YES" or "NO" column. When action is required to render the item acceptable, check "ACTION REQ." Use additional pages to list the unsatisfactory conditions found during the inspection with reference to any communication or conformity inspection reports relative to the item. Number the pages with the page number on which the question appears plus a letter, i.e., 10a, 10b, etc. Identify the unsatisfactory condition by using the related item number as it appears on the form; list numerically with sufficient space between each entry to note the corrective action taken. When the item has been re-inspected, cross out the previous "NO" answer and enter the new answer. This will be done for each inspection until the item is acceptable and will serve as a record of the number of times the item was inspected prior to acceptance.

When a question is not applicable to the product being inspected, enter "NA" across the "YES" and "NO" columns denoting not applicable. Pages containing only inapplicable questions may be omitted. Indicate by page numbers in the space provided on page 1, the pages submitted (or pages omitted if more convenient) in this report.

When more than one inspector participates in completing a report, each will enter his signature and title on page 1. He will also insert his initials adjacent to the answers and determinations he provides within the report.

The applicant's weight and balance report may be used in lieu of the weight and dimensional page of this form provided it contains all the information requested. An equipment list with enough copies for each copy of the type inspection report submitted, setting forth, where pertinent, the make, model, and serial number of each item, must be attached as part of the report. When any part of the list is part of the weight and balance report, the weight of each item and the horizontal distance from the datum line will be shown. This list should include only significant items or accessories; i.e., those of a type that could have an adverse effect on the airworthiness or operational characteristics of the airplane if replaced by other items the acceptability of which have not been determined. For example, this list should include, but not necessarily be limited to, seats, safety belts, fire extinguishers, electronic equipment, electric motors, instruments, wheels and brakes, tires, skis, floats, superchargers, heaters, engines, starters, generators, etc. When concerned with alteration of airplane under the supplemental type certification program, it is especially important to consider this list.

EXAMPLE:

YES	NO	ACTION REQ.
	*	X
X		

DO NOT SUBMIT THIS PAGE WITH REPORT

TYPE INSPECTION REPORT Part 1 –AIRPLANE GROUND INSPECTION		TIA	
		NO.TD7012LA-T BLOCK A	
APPLICANT	NAME The Boeing Company BLOCK C	ADDRESS (Number, street, city, State, and ZIP code) 3855 Lakewood Blvd. Long Beach, CA 90846 BLOCK D	
	MODEL MD-11 Series BLOCK E	DATA SHEET NO. A22WE REV. AG BLOCK F	DATED 3-3-98 BLOCK G
	SERIAL NUMBERS 42222	BLOCK H	
	REGISTRATION MARKS N2222	BLOCK I	
BASIS FOR CERTIFICATION BLOCK J	FAR PART 25.1301	DATED N/A BLOCK K	AMENDMENTS 68 BLOCK L
MODIFIED BY	NAME The Boeing Company BLOCK M	ADDRESS (Number, street, city, State, and ZIP code) 3855 Lakewood Blvd. Long Beach, CA 90846 BLOCK N	
DESCRIPTION OF ALTERATION Installation of Collins LRA-900 Radio Altimeters, on MD-11 Series airplanes BLOCK O			
PAGES	<input checked="" type="checkbox"/> SUBMITTED <input type="checkbox"/> OMITTED	IN THIS REPORT pages 1,3 and 4 BLOCK P	
ATTACHMENTS <ul style="list-style-type: none"> a. Form 8110-1 Type Inspection Authorization b. Form 8100-1 Conformity Inspection Record c. Form 8130-9 Statement of Conformity d. Weight and balance Report e. Form 8110-3 Statement of compliance with FARs - Approval of Deviations listed on 8130-9 f. "Conformity Inspection Reports" or " list of conformity reports that located in the FAA project file" BLOCK Q			
INSPECTIONS CONDUCTED BY (Name and identification) John Smith DMIR-224455NM Chester Stone DAR 14508CE Bob Shore DMIR 334589NM BLOCK R			
	DATE	BY (Title and signature)	
COMPLETED BY	4-10-98	John Smith John Smith DMIR 224455NM BLOCK S	
	4-10-98	Bob Shore Bob Shore DMIR 334589NM	
REVIEWED BY	4-11-98	Frank Ferrer Frank Ferrer ANM-108L BLOCK T	
APPROVED BY	4-11-98	Kurt Krumlauf Kurt Krumlauf ANM-108L BLOCK U	

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ADMINISTRATIVE DATA				
A. INSPECTION PERIOD		B. WHERE INSPECTION CONDUCTED		
FROM 4-1-98	TO 4-5-98	2455 CANDLEBERRY AVE LONG BEACH CA, 90807		
C. FORM SUBMITTED BY APPLICANT	<input checked="" type="checkbox"/>	STATEMENT OF CONFORMITY	DATED 4-1-98	
	<input type="checkbox"/>	MAJOR REPAIR AND ALTERATION FORM	DATED	
			YES	NO
D. DOES THE APPLICANT'S INSPECTION SYSTEM ASSURE THAT THE MATERIALS AND PARTS USED IN THE PROTOTYPE AIRCRAFT ARE IN CONFORMITY WITH APPROVED DATA			<input checked="" type="checkbox"/>	
E. DOES THE APPLICANT MAINTAIN RECORDS OF THE INSPECTION CONDUCTED ON THE PROTOTYPE TO SUBSTANTIATE HIS STATEMENT OF CONFORMITY			<input checked="" type="checkbox"/>	
F. NUMBER OF FAA CONFORMITY INSPECTIONS CONDUCTED		G. NUMBER OF UNSATISFACTORY ITEMS RECORDED IN THIS REPORT		
22		RECORDED IN PROJECT FILE 22		2 see 8110-3 in attachment e
G. DESCRIPTION OF AIRCRAFT INSPECTED ACFT S/N 49777 MD-11 Registration # N623EE				
REMARKS Verification of section 1.1 through 1.3.3 not required per TIA Section 18A All deviations listed on the 8130-9 have been DER approved see attachment "e" for 8110-3				

BLOCK A

BLOCK B

BLOCK C

D

BLOCK E

BLOCK F

BLOCK F

BLOCK G

BLOCK H

BLOCK I

1. ACTUAL EMPTY WEIGHT AND CENTER OF GRAVITY LOCATION					
1.1 Leveling means (FAR 23.871, FAR 25.871) See Boeing Weight and Balance form DAC 2233 dated 3-1-98 in Attachment d.					
<div style="border: 2px solid black; background-color: yellow; padding: 5px; display: inline-block;"> BLOCK A INCLUDES ITEMS 1.1 THROUGH 1.3.3 </div>					
1.2 Location of datum					
1.3 Required prior to weighing (FAR 23.29, FAR 25.29)					
VOLUME (Gals.)	FIXED BALLAST	UNUSABLE FUEL	UN-DRAINABLE OIL	ENGINE COOLANT	HYDRAULIC FLUID
WEIGHT (Lbs.)					
1.3.1 Actual empty weight	SCALE POINTS	WEIGHT (Lbs.)	HORIZONTAL DISTANCE FROM DATUM (Inches)		MOMENT (Inch - Lbs.)
	FORWARD LEFT				
	FORWARD RIGHT				
	REAR LEFT				
	REAR RIGHT				
	AUXILIARY				
	TOTAL				
1.3.2 Empty weight c.g. is _____ inches		forward aft of datum			
1.3.3 Aircraft weighed conformed to _____					AIRCRAFT WEIGHT (Mfg. Serial No.)
DRAWING LIST NO.	DATED	EQUIPMENT LIST NO.	DATED		
TIA FINDINGS <div style="float: right; border: 2px solid black; background-color: yellow; padding: 5px; margin-top: 5px;"> BLOCK B </div>					
Record results of investigations and special tests, such as static, endurance, operational, pressure, functional, and reliability, conducted or witnessed by manufacturing inspectors on the basis of instructions contained in item 18 of the type inspection authorization. Identify by TIA item number and item description; results to follow directly below the item description.					
1. Verified the following per TIA Section 18A 2. Item #1 installed on ACFT: Radio Altimeter, P/N 822-333-221FTU, S/N 001 Mod F; Radio Altimeter P/N 822-333-221FTU, S/N 002 Mod G. 3. Obtained 8130-9 from Boeing Inspection and Obtained 8110-3 from DER Joe Block for deviations listed. 4. Witness and Verified Weight and balance. 5. Inspected ACFT for general airworthiness and maintenance. 6. Verified all applicable ADs have been complied with. 7. Issued Experimental Certificate on 3-2-98.					

2.0 FABRICATION PROCESSES			Yes	No	Action Required
2.1	Have the chemical and physical properties of materials used in the fabrication of major and/or critical parts been satisfactorily substantiated to assure conformity with material requirements of the FAR 21.33 23.605		X NS		
2.2	Has the heat treatment of major and/or critical parts been adequately controlled to assure the fabrication of these parts in accordance with pertinent requirements of the approved data FAR 21.33 23.605		N/A	N/A	N/A
2.3	Has welding, brazing, and normalizing of major and/or critical parts been adequately controlled to assure fabrication of these parts in accordance with pertinent requirements of the approved data FAR 21.33 23.605		X NS		
2.4			N/A	N/A	N/A
2.5			N/A	N/A	N/A
2.6	Have processes for manufacturing or forming of special materials (i.e., plastics, phenolics, fiberglass, etc.) for major and/or critical parts been adequately controlled to assure fabrication of these parts in accordance with pertinent requirements of the approved data			X NS	
2.7	Has application of special processes for major and/or critical parts been adequately controlled to assure the fabrication of these parts in accordance with pertinent requirements of the approved data FAR 21.33		N/A	N/A	N/A
2.8	Have processes for bonding or gluing of major and/or critical parts been adequately controlled to assure the fabrication of these parts in accordance with pertinent requirements of the approved data. <u>See C/A on 8100-1 in attachment 1</u> FAR 21.33 23.605 25.605		X	X NS	X
2.9	Have processes for sealing and finishing of major and/or critical parts been adequately controlled to assure the fabrication of these parts in accordance with pertinent requirements of the approved data		N/A	N/A	N/A
2.10	List, by specification or drawing number, any special process or fabrication method used that is not covered in this section. <i>Process specification AMS 4902 Titanium</i> <i>Process specification DMS 2051 B stage Polyamide</i> <i>DWG # 33479-502 Rev a</i>				

BLOCK A
PAGES 5-11, 13-24, AND 28-31

BLOCK A - MARK "YES" ONLY WHEN YOU HAVE MADE A DETERMINATION THAT THE CONFORMITY INSPECTION HAS BEEN ACCOMPLISHED SATISFACTORILY. THIS CAN BE DONE BY YOURSELF OR BY EVIDENCE OF ANOTHER CONFORMITY INSPECTION REPORT (CIR) COMPLETED FOR THIS PROJECT. THE CIR MUST BE INCLUDED INTO THE TIR.

- ONLY MARK "NO" IF
IN WRITING NO ACTION IS REQUIRED

BLOCK B

BLOCK A -FIRST MARK "NO" THEN MARK ACTION REQUIRED AFTER CORRECTIVE ACTION IS COMPLETED THE CROSS OUT THE NO AND THEN MARK "YES" ALSO

IF THE BLOCKS ARE NOT USED THEN ENTER N/A ACROSS THE COLUMNS DENOTING NOT APPLICABLE

3.0 INSPECTION - GENERAL		Yes	No	Action Req.
3.1	Are drawings, specifications, equipment lists and other type design data available for inspection of the prototype product FAR 21.33 23.605 25.605	X <i>JS</i>		
3.2	Has a method been established to update these data to show the latest type design changes FAR 21.33 23.605 25.605	X <i>JS</i>		
3.3	Has a method been established to show the status of these changes relative to the prototype article and parts thereof FAR 21.33 23.605 25.605	X <i>JS</i>		
3.4	Are deviations from the type design data being recorded FAR 21.33 23.605 25.605	X <i>JS</i>		
3.5	Are parts and assemblies properly stamped, marked or otherwise identified to indicate the inspection status during various stages of fabrication FAR 21.33 23.605 25.605	X <i>JS</i>		
3.6	Does inspection of procured items show that they are in conformity with the vendor's drawings and/or the applicant's specification drawings FAR 21.33 23.605 25.605	X <i>JS</i>		
3.7	Have critical castings received 100 percent inspection by visual, radiographic, and magnetic particular penetrant inspection or approved equivalent nondestructive inspection methods FAR 23.621 25.621	X <i>JS</i>		
3.8	Have non-critical castings been inspected in accordance with the following table: FAR 23.621 25.621	X		
	CASTING FACTOR	INSPECTION		
	(a) 2.0 or more	100 percent visual	X	
	(b) Less than 2.0 but More than 1.5	100 percent visual and magnetic particle or penetrant or equivalent nondestructive inspection methods	N/A	N/A
1.50	(c) 1.25 through	100 percent visual, magnetic particle or penetrant, and radiographic or approved equivalent nondestructive inspection methods	N/A	N/A
REMARKS				
<p>Verified penetrant spec 455-22-11 was listed on mount casting Drawing # 34523-101 and 100% inspection was also noted on drawing. <i>ls</i></p>				
<div style="border: 2px solid yellow; border-radius: 15px; padding: 10px; display: inline-block; margin: 10px auto; width: 80%;"> <p>ENSURE THE TYPE OF INSPECTION REQUIRED IS SHOWN ON THE DRAWING.</p> </div>				
<div style="border: 2px solid yellow; padding: 5px; display: inline-block; margin: 10px auto; width: 15%;"> <p>BLOCK C</p> </div>				

5.0 FLIGHT CONTROL SYSTEM (Continued)

5.21

Control Surface Travels

NOTE: The applicant's flight control operational form(s) may be used in lieu of the information requested below if it is considered that it is more pertinent to the system being checked. When other data is used, it should be included as an attachment.

A. AT BEGINNING OF FAA OFFICIAL FLIGHT TEST

SURFACE		POSITION	ACTUAL MEASUREMENT (In inches or degrees)	POSITION	ACTUAL MEASUREMENT (In inches or degrees)	POSITION	ACTUAL MEASUREMENT (In inches or degrees)	CABLE TENSION (Lbs.) ¹
WING FLAPS		TAKEOFF		APPROACH		LAND		
	LEFT HAND	UP		DOWN				
	RIGHT HAND	UP		DOWN				
AILERON TRIM TAB		UP						
AILERON	LEFT HAND	UP						
	RIGHT HAND	UP						
	LEFT HAND	UP						
	RIGHT HAND	UP						
STABILIZER (MOVABLE)		UP						
	LEFT HAND	UP						
	RIGHT HAND	UP						
ELEVATOR TRIM TAB		UP						
ELEVATOR SERVO TAB		UP						
RUDDER		LEFT						
RUDDER TRIM TAB		LEFT						
RUDDER SERVO TAB		LEFT						

THE APPLICANT'S FLIGHT CONTROL OPERATIONAL FORMS MAY BE USED IN LIEU OF THIS PAGE IF IT IS CONSIDERED MORE PERTINENT TO THE SYSTEM BEING CHECKED.

A. AT BEGINNING OF FAA OFFICIAL FLIGHT TEST

SURFACE		POSITION	ACTUAL MEASUREMENT (In inches or degrees)	POSITION	ACTUAL MEASUREMENT (In inches or degrees)	POSITION	ACTUAL MEASUREMENT (In inches or degrees)	CABLE TENSION (Lbs.) ¹
WING FLAPS		TAKEOFF		APPROACH		LAND		
	LEFT HAND	UP		DOWN				
	RIGHT HAND	UP		DOWN				
AILERON TRIM TAB		UP		DOWN				
AILERON	LEFT HAND	UP		DOWN		LAND		
	RIGHT HAND	UP		DOWN		LAND		
	LEFT HAND	UP		DOWN		LAND		
	RIGHT HAND	UP		DOWN		LAND		
STABILIZER (MOVABLE)		UP		DOWN				
	LEFT HAND	UP		DOWN				
	RIGHT HAND	UP		DOWN				
ELEVATOR TRIM TAB		UP		DOWN				
ELEVATOR SERVO TAB		UP		DOWN		LAND		
RUDDER		LEFT		RIGHT				
RUDDER TRIM TAB		LEFT		RIGHT				
RUDDER SERVO TAB		LEFT		RIGHT		LAND		

1. When opposing cables are unequal tension, show tension of each cable and identify.

11.0 EQUIPMENT						
Due to the differences in the minimum equipment requirements of FAR 23 and 25, the following list of instruments and equipment items is provided as a means of recording the inspection of these items. The FAR requiring the particular item is indicated beside the item in the applicable FAR column. The answers to the following questions should be noted in the appropriate column.						
A. Is the item installed and marked in accordance with approved data FAR 23.1301, .1541 25.1301, .1541				BLOCK A		
B. Does a ground operational check show that the item operates satisfactorily FAR 23.1301, .1309 25.1301, .1309				BLOCK B		
C. Is action required as a result of this inspection				BLOCK C		
11.1 FLIGHT AND NAVIGATIONAL INSTRUMENTS – FAR 23.1303 25.1303						
ITEM	FAR		A.	B.	C.	
	23	25				
A. Airspeed indicator	X	X	YES	YES	NO	
B. Altimeter	X					
C. Altimeter (Sensitive or precision0		X	YES	YES	NO	
D. Clock (Sweep second pointer) See 8100-1 Attachment 1 corrective action complete		X	YES	NO	YES <i>IS</i>	
E. Free air temperature indicator		X				
F. Rate-of-turn indicator (Gyroscopically with integral bank or slip indicator)		X				
G. Bank and pitch indicator (Gyroscopically stabilized)						
H. Magnetic direction indicator	X	X				
I. Rate of climb		X				
J. Gyroscopic direction indicator (Directional gyro or equivalent)		X				
K. Mach meter		X				
L. Speed warning device		X				
M. Oxygen quantity indicator		X				
N. Hydraulic pressure indicator		X				
O. Electrical power indicators	X	X				
P. Landing gear position indicator	X	X				
Q. Wing flap position indicator	X	X				
R. Trim position indicator	X	X				
S. Differential pressure indicator		X				
T. Cabin absolute pressure indicator		X				
U. Rate-of-change of cabin absolute pressure		X				

**SECTION 6 – SUPPLEMENTAL TYPE INSPECTION REPORT (STIR)
FAA FORM 8110-26 INSTRUCTIONS**

600. Supplemental Type Inspection Report

- a. An STIR will be written using the instructions below. This form is to be used to record the results of conformity inspections and investigations of modified airplanes presented for Supplemental Type Certification (STC). Many inspections and tests will be witnessed or participated in by designees, which are not covered by questions listed herein. All such inspections and tests and changes to the product and/or type design data resulting from these inspections and tests must be recorded and made a part of this report.
- b. An STIR is completed by the designee within 5 working days after completion of section 18A. (Note the information provided in the STIR must be satisfactory and complete before the ACO and MIDO can approve the STC).
- c. The original and a copy of the STIR Part 1 will be sent to the ASI assigned to the project for review.
- d. The Program ASI will review the STIR Part 1 to ensure compliance with the STIR instructions. The Program ASI signs the “Report reviewed by block”, and retains a copy in their project file.
- e. The ASI will send the original STIR Part 1 to the ACO coordinator (or other authorized person) for approval. The ACO coordinator will sign the “Report approved by block” after the STIR it is found acceptable.
- f. Once the STIR is approved, the ACO Coordinator will send the STIR Part 1 to the FAA Flight Test Branch and they will complete Part 2 of the report.

BLOCK A	TIA NUMBER: Enter the Type Inspection Authorization (TIA) number including the TIA supplement numbers.
BLOCK B	DATED: Enter the date that the TIA was approved.
BLOCK C	PRODUCT: Enter the name of the product. (e.g. Airplane, helicopter)
BLOCK D	MAKE: Enter the original manufacturer of the aircraft.
BLOCK E	MODEL: Enter the aircraft model and series (e.g. DC-9-83, MD-11, B747-200).
BLOCK F	IDENTIFICATION AND SERIAL NUMBERS: Enter the matching registration mark(s) of the aircraft serial number(s).
BLOCK G	SERIAL Nos. ELIGIBLE: Enter the serial number(s) of the aircraft used for the FAA test (note: there normally is more than one aircraft used in FAA certification test and all aircraft must be listed).
BLOCK H	PRODUCT SPECIFICATION OR TC DATA SHEET No.: Enter the number from the original FAA type certificate data sheet. The number can be found on the TIA. (e.g. A6WE).
BLOCK I	REV. No. : Enter the latest revision number of the TC data sheet.
BLOCK J	CERTIFICATION BASIS (PART and AMENDMENT): Enter the Federal Aviation Regulation that the aircraft is to be certified under. The number can be found on the TIA. (e.g. Part 25, Part 23)
BLOCK K	APPLICANT: Enter the name of the company or individual responsible for applying for the STC. ADDRESS: Enter the location where the applicant is located.
BLOCK L	MODIFIER: Enter the name of the company or individual responsible for the modification (usually the same as the applicant). ADDRESS: Enter the location where the company or individual performing the modification is located.
BLOCK M	DESCRIPTION OF MODIFICATION: Provide a general description of the alteration(s) that is made to the aircraft. The description can be found in the TIA.
BLOCK N	ATTACHMENTS: List a description of the attachments included in the TIR report (e.g., Form 8100-1, Form 8130-9, Form 8130-3, and weight and balance report).
BLOCK O	INSPECTIONS CONDUCTED BY: When more than one inspector participates in completing an STIR report, each inspector will type or print their name and enter their signature and title and DMIR/DAR number or FAA office number. Each inspector will also initial adjacent to their names and adjacent to the answers and determinations they provided within the report.
BLOCK P	PREPARED -DATE -BY: Enter the date the report was completed and the name, title, DMIR / DAR / FAA office number and sign above the typed name and title.
BLOCK Q	REVIEWED - DATE - BY: Enter the date the report was reviewed and type or print the name, title, and office number of the FAA inspector reviewing the report. Sign above the typed name and title (Note: local FAA office policy will determine who is responsible for reviewing the report).
BLOCK R	APPROVED -DATE -BY: Enter the date the report was approved and type or print the name, title, and office number of the Senior ASI approving the report. Sign above the typed name and title. (Note: Only an authorized AR noted in the DAS manual can approve the report).

NOTE: PAGE 2 CONTAINS GENERAL INSTRUCTIONS AND TABLE OF REGULATIONS ONLY

BLOCK A	PERIOD OF INSPECTION FROM - TO: Enter the dates of when the inspections were started and completed.
BLOCK B	WHERE CONDUCTED: Enter the location where the inspections were conducted. This is usually the same as the applicant's location . When more than one location is applicable use the location of the company or individual.
BLOCK C	NUMBER OF FAA CONFORMITY INSPECTIONS - CONDUCTED - RECORDED ON FAA FORM 8100-1...: This number is taken from block 12 of ALL the 8100-1 inspection records. This also includes the number of inspections recorded for the part and installation conformity inspections.
BLOCK D	WERE DESIGN CHANGES NEEDED TO CORRECT DEFICIENCIES REVEALED BY FAA INSPECTIONS: Answer with either a yes or no. If a YES answer is entered then identify the design changes on page 4 or an attachment. All design changes must be approved by FAA engineering and recorded on a Form 8100-1.
BLOCK E	HAVE ALL PRODUCTS/ARTICLES SUBJECTED TO INSPECTIONS AND/OR TESTS BEEN PROPERLY RECORDED BY PART NUMBER(S), SERIAL NUMBER(S), OR REGISTRATION NUMBER(S), AS APPROPRIATE, ON PAGE 1, OR IN ATTACHMENT: Answer with either a yes or a no. If a no answer is entered then a complete and concise statement must be made in the remarks section of block I.
BLOCK F	DOES THE APPLICANT HAVE ON FILE INSPECTION RECORDS SHOWING CONFORMITY TO THE TYPE DESIGN AND ACCEPTABLE QUALITY OF THE PRODUCT: Answer with either a yes or a no. If a no answer is entered then a complete and concise statement must be made in the remarks section of block I. In addition, corrective action needs to be provided by the applicant.
BLOCK G	CHECK APPROPRIATE BLOCKS FOR ANY FAA FORMS THAT HAVE BEEN SUBMITTED BY THE APPLICANT PRIOR TO, OR AT THE TIME OF APPLICATION: Self explanatory
BLOCK H	IS SUPPLEMENTAL TYPE APPROVAL RECOMMENDED: Answer with either a yes or a no. <i>When you answer yes, you are attesting that all conformity inspections requested have been accomplished satisfactorily and there are no open deviations or corrective actions.</i>
BLOCK I	REMARKS: Add any significant or important information that will thoroughly explain the findings in the report.

TIA COMMENTS	Item 18 – Part 1: Enter any applicable comments made with respect to special inspections and/or tests conducted by reason of instructions contained in section 18A of the TIA. Identify each comment in accordance with the appropriate TIA numbering. Additional pages may be used as needed.
BLOCK 1.0	1.1 THROUGH 1.4: The applicant's weight and balance report may be used in lieu of the weight and dimensional page of this form provided it contains all the information requested. If the applicant's report is not available then enter all the required information.

SECTION 6, REQUIREMENTS SECTION, PAGE 5 and 6 of 8110-26 STIR

BLOCK A	<p>YES / NO / N/A: Answer the questions on the following pages by checking the appropriate "YES" "NO", or "N/A" column. When action is required to render the item acceptable, enter the words "ACTION REQ." in the "No" column. Use additional pages as necessary to list the unsatisfactory conditions found during the inspection and reference any communication or conformity inspection reports relative to the item. Number the additional pages with the page number on which the question appears plus a letter, i.e., 10a, 10b, etc. Identify the unsatisfactory condition by using the related item number as it appears on the Form 8100-1 and list the items numerically with sufficient space between each entry to note the corrective action taken.</p> <p>☞ When the item has been re-inspected, cross out the words "ACTION REQ" and check the yes block. This will be done for each inspection until the item is acceptable and will serve as record showing the number of times the item was inspected prior to acceptance.</p>
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U.S Department of
Transportation
Federal Aviation
Administration

SUPPLEMENTAL TYPE INSPECTION REPORT (STIR)

TIA No. BLOCK A		TD5922LA-T	Date BLOCK B	April 2, 1997
Product BLOCK C		TRANSPORT AIRPLANE		
Make BLOCK D		McDonnell Douglas		
Model BLOCK E		MD-90-30		
Identification and Serial No. BLOCK F		Registration # B-1155	Serial # 52234	
Serial Nos. Eligible BLOCK G		Serial # 52234 and subsequent		
Product Specification or TC Data Sheet BLOCK H		A6WE	Rev. No. BLOCK I	24V
Certification Basis (Part and Amendments) BLOCK J		See page 2 through 2c of this report		
Applicant BLOCK K		The Boeing Company, Douglas Products Division		
Address		3855 Lakewood Blvd, Long Beach CA, 90846		
Modifier BLOCK L		The Boeing Company, Douglas Products Division		
Address		3855 Lakewood Blvd, Long Beach CA, 90846		
Description of Modification BLOCK M		Installation of the ACE Smoke Detector P/N ACE100-11 and P/N 733-1122-110 on MD-90-30 airplanes, project number TD5922LA-T		
Attachments BLOCK N		Report includes pages 1, 2, 2A, 2B, 2C, 3, 4, 4A, 5 and 6 (TIA) Attachment 1 – FAA Form 8110-1 dated 04/06/97 (TIA) Attachment 2 – FAA Form 8100-1 dated 04/06/97 and 04/21/97 (TIA) Attachment 3 – FAA Form 8130-9 dated 04/06/97 and 04/21/97 (TIA) Attachment 4 – FAA Form 8130-3 dated 04/06/97 (TIA) Attachment 5 – Weight and Balance Report (RFC) Attachment 6 – FAA Conformity Inspection Reports (CIR) # 970222L and 970233L		
Inspection Conducted By BLOCK O		Ron Dunn DMIR2011101NM Dave Cotter DMIR200011NM		
Report Prepared By BLOCK P		RON DUNN Ron Dunn DMIR2011101NM		Date BLOCK Q
Report Reviewed By BLOCK R		Frank Ferrer Frank Ferrer ANM-108L		April 30, 1997
Report Approved By BLOCK T		Kurt Krumlauf Kurt Krumlauf ANM-108L		Date BLOCK S
				May 2, 1997
				Date BLOCK U
				May 3, 1997

SECTION 6 Page 2 of 8110-26 STIR

Supplemental Type
Inspection Report

General Instructions

This form provides a means whereby inspectors may record the results of inspections and/or tests, on modified products presented for supplemental type certificates, accomplished in accordance with instructions contained in the Type Inspection Authorization (TIA).

- A. Answer each question on this form by placing an "X" in the appropriate "YES" , "NO", or "NA" (Not Applicable) block, or by filling in the answer, as appropriate. When an answer requires an explanation, record the explanation under "REMARKS" or on page 4, (TIA comments).
- B. The applicant's weight and balance report may be used in lieu of the weight and dimensional page of this form, provided it contains all the information requested. Weight and balance should be included in attachment section of report, when required.
- C. Original FAA Form 8130-9 (317) and FAA Form 8100-1 should be part of the attachment section of this report.

Table of Regulations *

FAR		CAR								SUBJECT
	Balloon	Cert'n	N.U.A.	T-Cat	Glider	N-Rotor	T-Rotor	Eng.	Prop	-----
21.31			3.14 ²	4b.14 ²		6.14 ²	7.14 ²			Type Design
21.33		1.15(a)	3.15	4b.15	5.15	6.15	7.15	13.15	14.15	Insp. & Tests
21.35			3.16(b)	4b.16	5.16	6.16	7.16			Flight Tests
.29			3.73 ²	4b.104		6.104	7.104			Empty Wt. & C. G.
.31			3.72	4b.105		6.105	7.105			Removable Ballast
.605	31.51		3.293	4b.302		6.302	7.302			Fabrication Method
.871	31.35		3.401	4b.391		6.390	7.390			Leveling Means
.1301(a)(4)			3.652							Equip - Label
.1301(b)				4b.601(b)		6.601(b)	7.601(b)			Equip - Label
.1301(c)				4b.601(c)		6.601(c)	7.601(c)			Equip Install.
.1351(b)(1)			3.681			6.617				Elec - Haz & Prot'n
.1351(b)(2)	31.71(b)			4b.622(b)(2)			7.622(b)(2)			Elec - Haz/Mal. Fail
.1431			3.721							Elec - Hazard
.1431(a)							7.653(a)			Elec - Hazard
.1431(b)							7.653(b)			Electronic Effect
.1431(c)				4b.650(c)						Electronic Effect

* All regulations are those in effect on or preceding date of re-codification.

¹ For airworthiness standards, except balloons, a missing FAR denotes a generic requirement, E.g. FAR 23, 25, 27, 29.

² In part, see CFR Re-designation Tables.

SECTION 6 Page 4 of 8110-26 STIR

Supplemental Type Inspection Report	TIA Comments
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The following comments are made with respect to special inspections and/or tests conducted by reason of instructions contained in Section 18 of the TIA, and are identified in accordance with TIA numbering. Additional pages may be used as needed.

Item 18 - Part I:

Accomplish the task specified under 18A as follows:

1. Verified hardware part number of the following equipment is installed in the test aircraft:

FLIGHT TEST EQUIPMENT	PART NO.	QUANTITY
ACE Smoke Detector	ACE100-11	1 in Aft lavatory
AJAX Smoke Detector	733-1122-110	1 in Fwd lavatory

2. Verified the ACE and AJAX smoke detectors were installed per FDEO # N2211. Verified the ACE and AJAX Smoke detectors were conformed prior to installation. Reference Attachment 1 Conformity Inspection Reports (CIR) # 970222L and 970233L.
3. Obtained 8130-9 from the applicant per Far 21.53
4. Conducted general airworthiness inspection on aircraft prior to FAA flight test.
5. Verified Aircraft weight and balance
6. Experimental Airworthiness Certificate Issued.

1.0 Empty Weight and Corresponding Center of Gravity

1.1 Describe Leveling Marks or Means
Weight and Balance report MDC-91K0981 was verified See attachment 5
 Ref: § .871

1.2 Location of Datum

1.3 Horizontal Distance (Inches) From Datum to Average Front Main Scale CL _____.
 Horizontal Distance (Inches) From Datum to Average Rear Main Scale CL _____.
 Horizontal Distance (Inches) From Datum to Auxiliary Scale CL _____.

1.4 Empty Weight	Scale Reading	Tare	Net Weight
Forward Left Main Scale			
Forward Right Main Scale			
Rear Left Main Scale			
Rear Right Main Scale			
Auxiliary Scale			
Empty Weight			

NOTE: *The empty weight and corresponding center of gravity must be determined by weighing the aircraft with --*

- (1) *Fixed Ballast*
- (2) *Unusable Fuel*
- (3) *Full operating fluids, including (i) oil (ii) hydraulic fluid and (iii) other fluids required for normal operation of aircraft systems, except potable water, lavatory pre-charge water, and water intended for injection in the engines.*

Center of Gravity is _____ inches Forward Aft of Datum

Ref: § .29

SECTION 6 Page 5 of 8110-26 STIR

Supplemental Type Inspection Report		2.0 Removable Ballast		
2.1	If removable ballast is used to show compliance with the flight requirements, is the place for carrying ballast installed and marked in accordance with the change to the type design? <p style="text-align: right;">Ref. § .31</p>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
3.0 Fabrication Process				
3.1	a. Has the applicant shown that materials, products, parts, processes, construction, and assemblies conform to the specifications and drawings shown in the change to the type design?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Has the product been changed between the time it was shown to comply with item 3.1.a. of this report and the time it was presented for FAA Inspection? Record any changes on FAA Form 8100-1.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	c. Has the applicant made all inspections and tests necessary to determine --			
	(1) Compliance with the applicable airworthiness and noise/emission requirements;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(2) That the materials and products conform to the specifications in the changed type design;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(3) That the parts of the product conform to the drawings in the changed type design;	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(4) That the manufacturing processes, construction, and assembly conform to those specified in the type design? <p style="text-align: right;">Ref. § 21..33</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Has the suitability and durability of materials used for parts, the failure of which could adversely affect safety:			
	a. Been established by experience or tests?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Been established through approved specifications that ensure their having the strength and other properties assumed in the design data? and	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Been evaluated to take into account the affects of environmental conditions, such as temperature and humidity, expected in service? <p style="text-align: right;">Ref. § .603(a)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Have high standards of workmanship been used in the fabrication of parts? <p style="text-align: right;">Ref. § .603(b)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.0 Fuselage and Wing				
4.1	Are changes to the fuselage or wing in conformity to the change in type design? <p style="text-align: right;">Ref. § 21.31</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.0 Control System				
5.1	Are changes to the control system in conformity to the change in type design?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.2	Do the control surface travels conform to the change in type design? <p style="text-align: right;">Ref. § 21.31(a)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.0 Personnel and Cargo Accommodations				
6.1	Are changes to the personnel and cargo compartments in conformity with the change to the type design? <p style="text-align: right;">Ref. § 21.31(a)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7.0 Powerplant Installation				
7.1	Does the powerplant installation conform to the change to the type design? <p style="text-align: right;">Ref. § 21.31(a)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8.0 Equipment				
8.1	Are changes to the installed equipment in conformity to the change in type design? <p style="text-align: right;">Ref. § 21.31(a)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

SECTION 7 - AIRWORTHINESS APPROVAL TAG FAA FORM 8130-3 – PROTOTYPE PRODUCTS

700. TAG Preparation

- a. After a determination has been made that the article conforms to the design data, an airworthiness approval tag FAA Form 8130-3 shall be completed in accordance with FAA Order 8130.21.

Note: All **unsatisfactory** conditions must be resolved by having the applicant (manufacturer) provide acceptable corrective action to the ASI, CAA or Designee. An 8130-3 or JAA Form 1 Airworthiness Approval Tag should not be signed until all deviations have been approved by FAA engineering or DER. (Reference paragraph 105)

- b. The 8130-3 tag shall accompany the prototype article to its destination. Only an FAA, DAR, ODAR or DMIR who has authority to perform conformity inspections can sign the 8130-3 tag. The other Civil Aviation Authorities (CAA) may use the 8130-3 tag.
- c. All applicable blocks of the 8130-3 tag must be filled out for the document to be valid. All entries are to be made in the English language. The receiving authority must know what the part is or is not usable for. In the case of non-airworthy parts destined for bench or ground testing, the following note should be written in block 13 of the tag

Note: Articles produced for ground testing only, may conform to the intended type design or may conform to special instructions or test plans approved by the FAA, in such cases the parts are not airworthy and shall not be used on flyable aircraft.

SECTION 7

8130-3 TAG

BLOCK 1	Approving National Aviation Authority/Country: Enter "FAA/United States" (may be pre-printed).
BLOCK 2	FAA: Preprinted No action necessary
BLOCK 3	Form Tracking Number: Enter in the unique tracking number developed by the issuer (see <i>FAA Order 8130.21, paragraph 13c</i>).
BLOCK 4	Organization Name and Address: Enter the full name and address of the FAA approved organization shipping the prototype parts. (see <i>FAA Order 8130.21 paragraph 14d</i>). Company Name and Address PAH approval or certificate number, when applicable
BLOCK 5	Work Order, Contract , or Invoice Number: Enter in the contract, work order or invoice number related to the shipment list, or maintenance release, and state the number of pages attached to the form, including dates, if applicable. (see <i>FAA Order 8130.21, paragraph 14e</i>).
BLOCK 6	Item: When this form is issued a single item number or multiple item numbers may be used for the same part number. Multiple items should be numbered in sequence. If a separate listing is used, enter "List #XXX Attached".
BLOCK 7	Description: Enter the name or description of the product/part as shown on the design data. For products/parts that do not have design data available, the name as referenced in a part catalog, overhaul manual, etc., can be used.
BLOCK 8	Part Number: Enter each Engineering designated part number of the product/part/appliance.
BLOCK 9	Eligibility: When using FAA Form 8130-3 for CONFORMITY of certification program products, enter N/A. Where parts are TSO articles, enter "N/A".
BLOCK 10	Quantity: list the quantity for each part number conformed and listed in block 8.
BLOCK 11	Serial Number / Batch Number: State the serial number or equivalent (identified on the part) on the form for each product/part/appliance shipped. If a serial number or equivalent is not required on the part, enter "N/A."
BLOCK 12	Status / work: Enter "PROTOTYPE" for products/parts submitted to support type certification programs.
BLOCK 13	Remark's: When used for conformity the word "CONFORMITY" must be entered in capital letters. In addition, an explanation of the products/parts use, e.g., pending approved data, TC pending, for ground testing only, test coupons, etc., must be provided. Information concerning a conformity inspection such as design data, revision level, date, project number, and special instructions as shown on FAA Form 8120-10, Request for Conformity, should be entered in this block. Any special instructions, restrictions and or intended use of the product should be included. Important note: Enter the FAA Project Number and MIDO or CMO conformity request tracking number listed on the 8120-10 request for conformity.

SECTION 7

8130-3 TAG

BLOCK 14	<p>Airworthiness Approval Check the appropriate box to show whether the product is approved design data and are in a condition for safe operation or Non-approved design data specified in block 13.</p> <p>Place a check in the “Non-approved design data specified in Block 13” when Form 8130-3 is used for conformity of a prototype product/part/appliance certification program.</p> <p>Note: Some times used parts are used for Prototype aircraft. Used parts must conform to the same design and workmanship standards as a new part and the use of used parts must have prior approval from the ACO and MIDO/CMO. Do not check any blocks if the parts are used.</p>
BLOCK 15	<p>Authorized Signature: Enter the signature of the FAA authorized representative who has the authority to perform this function on behalf of the FAA. The approval signature shall be applied at the time and place of issuance, and shall be manually applied.</p>
BLOCK 16	<p>Approval/Authorization number: Enter the approval/authorization number of the DAR, DMIR, and ODAR, of the authorized representative identified in Block 15. If signed by an FAA inspector, the authorization number will be the applicable office identifier.</p>
BLOCK 17	<p>Name: Enter the typed or printed name of the FAA designee or ASI identified in Block 15.</p>
BLOCK 18	<p>Date: Enter the date the Form 8130-3 is signed and the conformity determination is made. This does not need to be the same as the shipping date, which may occur at a later date.</p>
BLOCK 19 through 23	<p>These blocks are not used for conformity inspections.</p>

SECTION 7

I. Approving National Aviation Authority/Country FAA/United States		AUTHORIZED RELEASE CERTIFICATE FAA Form 8130-3, AIRWORTHINESS APPROVAL TAG				1. Form Tracking Number 3-1099-501	
4. Organization Name and Address ABC Aerospace 2233 highland Ave. Duarte CA, 91010						1. Work Order/ Contract/Invoice No. 168822/2376	
6. Item	7. Description	8. Part Number	9. Eligibility	10. Quantity	11. Serial/Batch No.	12. Status/Work	
1	Firex	349000-1	N/A	4	04091, 04092, 04093, 04094	PROTO-TYPE	
2	Temp Compensated Pressure Regulator	23445-1	N/A	2	001 and 002	PROTO-TYPE	
13. Remarks CONFORMITY FAA PROJECT NO. <u>ST0722LA-T</u> FAA MIDO/CMO LOG NO. <u>991001L</u> Drawing number 349000-1 Rev B TC pending Ground test only Deviations listed on the 8130-9 have been reviewed by FAA engineering Drawing number 23445-1 Rev C							
14. Certifies the items identified above were manufactured in conformity to: <input type="checkbox"/> Approved design data and are in condition for safe operation <input checked="" type="checkbox"/> Non-approved design data specified in Block 13.				19. <input type="checkbox"/> 14 CFR FAR 43. Return to Service <input type="checkbox"/> Other regulation specified in Block 13 Certifies that unless specified in block 13, the work identified in block 12 and described in Block 13 was accomplished in accordance with Title 14, Code of federal Regulations, part 43 and in respect to that work, the items are approved for return to service.			
15. Signature		16. Approval/Authorization No		20. Authorized Signature		21. Approval/Certificate No.:	
<i>John Dunn</i>		DARF223344-NM					
17. Name (Typed or Printed)		18. Date: (m/d/y)		22. Name (Typed or Printed):		23. Date: (m/d/y)	
John Dunn		10/22/99					
User/Installer Responsibilities							
It is important to understand that the existence of this document alone does not automatically constitute authority to install the part/component/assembly. Where the user/installer performs work in accordance with the national regulations of an airworthiness authority different than the airworthiness authority of the country specified in Block 1, it is essential that the user/installer ensures that his/her airworthiness authority accepts parts/components/assemblies from the airworthiness authority of the country specified in Block 1. Statements in Block 14 and 19 do not constitute installation certification. In all cases, aircraft maintenance records must contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.							

FAA Form 8130-3 (6-01)

* Installer must cross check eligibility with applicable technical data.

SECTION 8 - INSTRUCTIONS FOR COMPLETING THE CONFORMITY COMPLETION MEMO

800. CONFORMITY COMPLETION MEMO

- a. The Conformity Completion Memo will be used to route and close all Conformity Inspection Reports (CIR) and Type Inspection Reports (TIR). This memo may be used for routing unsatisfactory conditions noted on an FAA Form 8100-1 Conformity Inspection Record, to FAA Engineering for disposition. Note: Some delegated organizations are authorized in writing by the FAA to use another routing and closing method, such as stamping and signing the 8120-10 internally within the organization. However this method must not be used when routing and closing reports between FAA offices.
- b. Designees will complete the memo per the instructions below and attach it to the front of Conformity Inspection Report (CIR). The completed CIR should be submitted to their Advising ASI within 3 working days from completion of the conformity inspection. The completed TIR should be submitted to their Advising ASI within 5 working days from completion of the inspection. The ASI should also use the Conformity Completion Memo if they are performing the conformity inspection.
- c. The Advising ASI or delegated organization will review the CIR and TIR for completeness and accuracy and sign the memo. The CIR will be sent to the coordinating MIDO/CMO office listed in block 4.

Block 1	COMPLETION DATE: Enter the date when the CIR was completed.
Block 2	FROM: Enter name of ASI or designee who completed the CIR
Block 3	TO FAA PROJECT MANAGER: Enter the FAA project manager’s name that is listed in Item # 22 on the 8120-10.
Block 4	THROUGH COORDINATING MIDO/CMO: Enter the FAA office and name that is listed in item #30 on the 8120-10. This is the office where the CIR is to be sent for tracking purposes.
Block 5	TRACKING #: Enter the tracking number that is listed in item #2 on the 8120-10.
Block 6	PROJECT #: Enter the FAA project number that is listed in item # 4 on the 8120-10.
Block 7	APPLICANT NAME: Enter the applicant’s name that is listed in item # 6 on the 8120-10.
Block 8	COMPANY NAME: Enter the company name that is listed in item # 7 on the 8120-10.
Block 9	WE HAVE COMPLETED THE INSPECTIONS: Check this block when the inspection are completed and all deviations and unsats are approved by FAA engineering or DER.
Block 10	ENGINEERING DISPOSITION: Check this block when FAA Engineering disposition is being requested and an 8100-1 is marked with the unsat condition. Engineering will review the 8100-1 unsat condition and accept or reject it and sign the 8100-1.
Blocks 11-19	FAA FORMS: Check the applicable blocks for each form that is attached in the report.
Block 20	COMMENTS: Enter any applicable information that will help in processing the report.
Block 21	FAA ASI SIGNATURE and date: The advising ASI or Approved Organization will sign here when the report has been reviewed and found satisfactory.

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

Instructions for completing the conformity plan are described in each of the blocks below where the applicant will enter the information about the project.

PART I FAA CONFORMITY PLAN		DATE: <i>Enter date of conformity plan</i>	Revision: <i>If the plan is revised then the applicant would assign a revision level to the plan e.g. “rev A” or “rev 1”</i>
a. Applicant name: <i>Enter name of TC or STC applicant, which is the same name as on the FAA Form 8110-12, Application for Type Certificate, Production Certificate, or Supplemental Type Certificate.</i>		b. Project number: <i>Enter the FAA assigned project number. This number is used for each TC or STC project and is assigned by the ACO or DAS administrator. Ref. 8110.4 paragraph 2-4 d. e.g. ST9999LA-T</i>	
c. Aircraft model(s) to be modified:	<i>Enter the model number(s) of the aircraft being modified e.g.. Boeing 747-400, Gulfstream GV, Bell 210, etc. as it appears on the Type Certificate Data Sheet in the top right hand corner of the first page.</i>		
d. General Description of project: <i>The description should be brief , e.g. “The manufacture and installation of a 2,000 gallon retardant tank onto the aircraft model listed above for fire-fighting purposes”.</i>			

PART II Name of Focal points for project:	
a. Facility Quality Assurance:	<i>This is the name(s) of the applicant’s quality assurance person(s) who is assigned to this project. This person(s) is whom the FAA or designee would call when quality issues with the project need to be addressed. This person would be involved in the planning and completion of the conformity and airworthiness of the project. This person(s) also are responsible for ensuring that the proto-type aircraft conforms and is submitted for airworthiness certification. A phone number and or Email address should be added here.</i>
b. Facility Test & Evaluation:	<i>This is the name(s) of the applicant’s quality or engineering person(s) who is responsible for testing or flight-testing. This person(s) is whom the FAA or designee would call about any conformity or test setup issues associated with the project. A phone number and or Email address should be added here.</i>
c. Facility Engineering:	<i>This is the name(s) of the applicants engineering person(s) who is assigned to this project. This person(s) is whom the FAA or designee would call about any engineering issues associated with the project.</i>
d. Name of DAR/ODAR/DMIR/AR	Part conformity: <i>This is the name(s) of designee(s) who are qualified to do part conformity. The designee must have Function Codes 05 for DMIR or 21 for DAR/ODAR. For DAS the AR must be qualified and authorized to perform this function. Also, list the Phone number and designee number.</i>
	Installation conformity: <i>This is the name(s) of designee(s) who are qualified to do Installation conformity. The designee must also have experience with installations on the type of product being certified. The designee may have limitations in his or her authorization, i.e. Part 25 or Part 23 aircraft. The designee must have Function Codes 05 for DMIR, or 21 for DAR/ODAR. For DAS the AR must be qualified and authorized to perform this function. Also, list the Phone number and designee number. Note: Designees are not authorized to split the conformity work of an individual RFC. (Splitting work between designees using a single RFC has lead to confusion and disagreement between designees. The responsibilities for completion of a CIR is not clear and this has lead to reports not being completed or inspections not recorded accurately)</i>

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

<p>d. Name of DAR/ODAR / DMIR/AR</p>	<p>TIA/STIR part 1: <i>This is the name of the designee who is qualified to perform TIA inspections and airworthiness conformity on aircraft. The DAR or ODAR must have Function Code 09 and 21. Qualified DMIR's working for certain PC holders may also be authorized to release aircraft for FAA flight testing if they have function codes 05 and 02. In addition, the designee must possess appropriate knowledge, experience, skills and proficiency to assess the airworthiness condition of the aircraft before flight-testing. Possession of an FAA pilot certificate and/or an Airframe and Powerplant Mechanic certificate would be desirable for these assigned persons. The designee may have limitations in his or her authorization, i.e. Part 25 or Part 23 aircraft, and this should also be verified. <u>This designee is required to coordinate the satisfactory completion of section 18a inspections and release the aircraft to the FAA flight test pilot/engineer.</u> Also, list the Phone number and designee number.</i></p>
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<p>e. Name DER/AR</p>	<p>Test and compliance: <i>This is the name(s) of DER/AR who the DMIR/DAR/ODAR/AR will coordinate with after the completion of the test setup. Also, list the Phone number and designee number.</i></p> <p>TIA/STIR part 2: <i>This is the name(s) of the DER(s) of FAA who will coordinate the release of the aircraft with the DAR. Also, list the Phone number and designee number.</i></p>
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<p align="center">PART III General Information</p>		
<p>a. Is an FAA Approved Repair Station doing the modification and has it been evaluated? <i>If the installation is not done at an FAA approved repair station then additional measures must be considered to ensure the installation is done properly. The modification and inspection performed by the applicant must be equivalent to the work performed by the PAH or FAA approved repair station. It should not be construed that an FAA approved repair station is any better at doing installations than a non-FAA approved repair station. However, additional measures could include the applicant submitting a more detailed breakdown of design drawings on the RFC and having a designee at the modification site during the entire duration of the modification activity. The applicant in most cases would not be allowed to delegate the signing of the 8130-9 to the modification site personnel, the applicant's QA would be required to oversee the modification onsite during the entire duration of the modification activity and to sign the 8130-9.</i></p>	<p align="center">YES</p>	<p align="center">NO</p>
<p>b. List the location(s) where the modification and installation will be done and who will do the work: <i>List the address and name of the facility where the aircraft will be modified and flight-tested. This may also be the location where the first test flight would occur after installation of the modification. If the site is outside the United States than an undue burden decision may be required Ref FAA Order 8100.11. If multiple facilities are involved than consideration for operating the aircraft from one location to another to complete the modification must be discussed and accounted for in the plan. If the installation work is split between two or more facilities, the plan must also include procedures for coordinating and controlling the work between the each site including provisions for issuing and tracking RFCs at each location. Note: Designees are not authorized to split the conformity work of an individual RFC. (Splitting work between designees using a single RFC has lead to confusion and disagreement between designees. The responsibilities for completion of a CIR is not clear and this has lead to reports not being completed or inspections not recorded accurately)</i></p>		
<p>c. Describe the maintenance requirements needed for maintaining the aircraft during the project: <i>List the maintenance manual or procedures that will be used. Most applicants use an aircraft from an operator (Part 121 or Part 135), in these cases the operators maintenance procedures should be referenced.</i></p> <p><i>Some flight tests may occur over several months to years and may include flight tests beyond the operational envelope of the TCDS. Extra inspection measures must be considered for these tests. Operator maintenance procedures may not be sufficient to inspect and maintain a flight test aircraft operating under an experimental certificate. Some flight test conditions will require the applicant to provide an inspection plan and procedures to the MIDO/FSDO for review and concurrence. The plan and procedures include increased inspections that normally would not be performed under a Standard Airworthiness Certificate.</i></p>		

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

Part IV Inspections systems		
<p>a. Describe the type of planning, travelers, work orders, etc. used for inspection. If procedures are used list the procedure title and latest revision/date: <i>Provide a description of the planning paperwork that will be used for the installation and inspection of the parts. Some companies use planning paper different than used in production. Some companies have used the actual drawings for documenting their inspections or develop their planning documents during the prototype construction. In these situations, the Designee and MIDO need to understand the type of planning documents to be used. This information is helpful to determine the extent of conformity inspections to be conducted or witnessed by the Designee.. The conformity program should be adjusted to fit unique or unusual conditions.</i></p> <p><i>Provide a description of the planning paperwork that will be used for the installation and inspection of the parts. Some companies use planning paper different than used in production. In these situations the MIDO manufacturing Inspections needs to understand what planning documents are to be used, so the extent of conformity inspections to be conducted or witnessed by the manufacturing inspector is known. The conformity program should be adjusted to fit existing conditions.</i></p>		
<p>b. Are suppliers going to be used for the project? <i>Check this YES if suppliers are used to produce the prototype parts. (Standard parts i.e. bolts, nuts, washers, etc should not be considered)</i></p>	YES	NO
<p>c. If so, name the supplier(s), location and their involvement in the project: <i>List all the suppliers names, locations, and products being produced for the project. This information is needed to determine the level of MIDO involvement with the project. If suppliers in other countries are used, an undue burden decision paper will be processed by the MIDO.</i></p>		
<p>d. Is the supplier(s) quality system approved by applicant? <i>Check YES if the applicant has a procedure and process for reviewing and approving the supplier quality system and this has been accomplished satisfactorily. Suppliers with unacceptable levels of production quality problems have been known to produce prototype parts in these situations a higher level of Conformity inspections are required. If NO is checked then the AR may have to spend more time inspecting the product since the supplier quality system is unknown or undergoing approval by the applicant.</i></p>	YES	NO
<p>e. List the special processes used in this design that have or have not had been previously approved by the FAA. <i>If special process have had an FAA conformity inspection and was approved on prior projects by the applicant, an in depth conformity inspection usually is not required. Information provided here will assist the FAA in determining the level and depth of conformity inspection required for the project.</i></p> <p><i>Specifications that offer multiple options for processing will require an in-depth conformity inspection. These types of specifications leave the manufacturing person to choose from a number of options for processing the product. Inappropriate choices of methods could be made, depending upon previous experience and training by person using the specification. The practice of referencing general specifications and guidance could result in a product not meeting the intended definition of the design configuration. A conformity inspection is requested to ensure that process controls produce consistent and conforming product.</i></p>	YES	NO
<p>f. If the suppliers are not approved for the special processes explain the process of how will they be approved to perform the process: <i>Applicants must explain how they will evaluate and inspect the special processes performed by their suppliers. Information provided here also assists the FAA in deciding the level of involvement. If the applicant has an adequate written procedure used to evaluate and inspect processes and changes, the level of conformity inspection could be reduced. In the case of an applicant not having an adequate written procedure it would be necessary to conduct a higher level of conformity inspections on the processes until such time as the FAA has confidence that they can safely rely to a greater degree upon the company system.</i></p>		

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

Part V Applicant Conformity Inspections		
<p>a. List company inspection procedures to be used to perform Conformity Inspection / First Article inspection: <i>This section applies if an applicant has an adequate written First Article Inspection (FAI) system that equals or exceeds the conformity requirements in FAA policy (e.g. FAA Order 8110.4). The level of conformity determinations may vary depending upon the applicant's FAI process, procedures, experience, inspection personnel, equipment, facilities, and FAI documentation. Due to those differences between applicants FAI process and involvement in overseeing the process, the conformity program may be adjusted to fit existing conditions. In the case of an applicant who relies on the ability of the supplier to perform the conformity inspection and the supplier to issue the 8130-9 it would be necessary to conduct a higher percentage of conformity inspections. If an applicant has previously demonstrated to the FAA the acceptability their FAI process and procedures and subject the prototype product to these controls, the level of conformity inspection may be adjusted. Prior to any benefits of this approach, the applicant must present a written FAI system for evaluation to the FAA. The applicant must allow sufficient time for the FAA to evaluate the system.</i></p>		
<p>b. Are these procedures equivalent to the conformity inspection criteria in FAA Order 8110.4 Chapter 5? <i>Applicants should only mark this YES if they have made a determination that their FAI procedures equals or exceeds the conformity inspections in FAA 8110.4, if the applicant has not made this determination then they should describe below how they will meet 14 CFR Part 21.33. Only mark this YES if a complete evaluation and comparison has been made. It is not necessarily a requirement for an applicant to have such a procedure however they can benefit from it.</i></p>	<p>YES</p>	<p>NO</p>
<p>c. If not, what alternative procedures will be used to ensure the same level of inspections are made? <i>Many applicants do not have a written FAI system that can be use. Applicants also do not have a written process to evaluate a supplier FAI system. In these cases applicants should use either the procedures in FAA Order 8110.4 chapter 5, or they should describe the inspection process they will use to ensure that they meet 14 CFR Part 21.33. DAR/DMIR/ODAR/AR is not responsible to perform this inspection for the applicant. Applicants are responsible to perform 100% conformity inspections, and cannot rely on FAA designees to perform the conformity inspection on their behalf. Many applicant's delegate their FAI inspections to suppliers without actually knowing the supplier's capability to meet 14 CFR Part 21.33. If applicants have not adequately described and documented their FAI process, and have not flowed down the FAI requirements to their supplier, a FAA designee would have greater involvement in the level of conformity inspection. Applicants can benefit from having a proven FAI system that the FAA can rely on.</i></p>		
<p>d. Name of the responsible QA person(s) from the applicant responsible to sign the 8130-9 Statement of conformity in accordance with 14 CFR §21.50 and §21.33: <i>List the name of the person from the quality organization. If the applicant delegates to a supplier, add the name of the representative at the supplier who will act as the applicant's agent. A copy of the authorization letter must be attached to FAA Form 8130-9 when it is submitted to the FAA. The agent letter from the applicant must have a name of a person(s) who is qualified to perform the inspection on their behalf. Listing only the supplier organization title is not acceptable. Applicant must know who they are delegating to and their qualifications and experience. Applicants must ensure that the person signing the 8130-9 has knowledge of 14 CFR 21.33 and 21.53 and that the person is responsible to signing the form and submit the form to the DAR/DMIR/ODAR/AR.</i></p> <p><i>14 CFR part 21.33 requires each applicant to make all inspections and tests necessary to determine-- (1) Compliance with the applicable requirements; (2) That materials and products conform to the specifications in the type design; (3) That parts of the products conform to the drawings in the type design; and (4) That the manufacturing processes, construction and assembly conform to those specified in the type design.</i></p> <p><i>If delegated to applicant's supplier applicant must submit a letter of delegation in accordance with 8110.4 chapter 5. Applicant must assure the same level of conformity inspection is performed as outlined in 8110.4.</i></p>		

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

Part VI FAA Conformity Inspections Identification and Tracking	
<p>a. Name of person(s) responsible to generate the 8120-10 request for conformity for this project (DER, DAR, AR, FAA): <i>If other than the applicant for the project, list the name and phone number of the person from the applicant who will write the conformity request. This is usually a DER/engineering AR.</i></p>	
<p>b. Explain how the 8120-10s will be coordinated with the ACO and MIDO. <i>In most cases the 8120-10 will be given to the ACO; however, the FAA needs to know if the 8120-10s are to be coordinated through the ACO project Engineer or directly to the ACO coordinator or MIDO, etc. If an agreement is made to allow the DER to directly coordinate with the MIDO then a written agreement is required between the MIDO and ACO. (Reference, FAA Order 8100.10 Requesting Conformity Inspections at a Supplier Outside a Geographic Area, FAA Order 8110.44 Conformity Inspection Notification Process)</i></p>	
<p>c. Explain how the applicant will track the initiation and completion of Conformity Inspections: <i>It's expected the applicant will track the initiation and completion of all conformity inspections for their project. Applicant must describe a method to ensure all FAA inspections are coordinated, tracked and all unsatisfactory conditions listed on the designee's 8100-1 are closed before TC/STC approval. Applicant must also ensure all deviations they or their suppliers list on the 8130-9 are disposition by the DER, FAA, AR engineer. <u>NOTE: TC/STC approvals have been delayed because an applicant failed to track conformity inspections at their facility, their suppliers, or at the test site. This is especially common when an applicant delegates their inspection and signing of the 8130-9.</u></i></p>	
<p>d. Name of person (s) responsible to track the conformity inspections for the applicant: <i>Enter the name and phone number of the person(s) from the applicant. This person(s) should also track the conformity inspections at the suppliers and final installation.</i></p>	

Part VII Conformity Description	
a. Part conformity	<p>Description of parts and assemblies to be conformed: <i>Describe at least the type, nomenclature, and quantity of the parts needing conformity. Applicant may also list parts numbers. Also list all the parts that the applicant will propose to the FAA not requiring conformity along with an explanation of why they think the parts do not require FAA conformity. This is only a proposal to the FAA. The FAA will make final determination of conformity level. Applicant may risk their TC/STC approval if parts were not conformed and it was later determined that the parts required FAA conformity.</i></p>
b. Installation conformity	<p>Description of parts / assemblies / equipment / engines requiring installation conformity: <i>Describe the parts, equipment and type of installations requiring conformity inspection. Also, any electrical installations must be listed here. Applicant may also list installation drawings. All parts being installed on an aircraft in service requires installation conformity unless otherwise authorized by the ACO and MIDO. All Part 25 electrical installations require a conformity inspection using the FAA electrical inspection checklist.</i></p>
c. Test conformity	<p>Description of test equipment/ instrumentation being used that will require installation conformity: <i>Describe the test equipment to be installed on the test aircraft. In addition, provide a general description of the installation. With this information, the FAA can provide special instructions to the designees for inspecting the equipment on board the aircraft. (example: temporary testing equipment installed in the cabin area where personnel are present during flight would require verifying sharp objects are not protruding into the aisle; verifying equipment is secure to prevent movement in flight; Verifying equipment floor studs are not protruding past nuts and are safely capped to prevent injury to personnel walking on aircraft.)</i></p>
	<p>Description of test set up conformity: <i>Describe the type of test set up that will require conformity inspection. (e.g. bird impact test, GVT, galley load, coupon pull testing, static load, etc)</i></p>
d. Flammability and Fire-blocking Test coupon conformity	<p>Description of coupons and test instrumentation requiring conformity: <i>Provide the type, and nomenclature of coupons and instruments.</i></p>
	<p>Description of Tests requiring test set up conformity: <i>Describe the type of test set up that will require conformity inspection.</i></p>

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

<p>f. Post Conformity Modifications and/or Replacements</p>	<p>Description of how modifications or replacement of FAA conformed parts will be re-conformed: <i>If modifications to FAA conformed parts are anticipated then the applicant should have a method to identify the design modification and have a new 8120-10 issued for conforming the delta change made to the part or assembly. 14 CFR part 21.33 requires each applicant to allow the FAA to make any inspection and any flight and ground test necessary to determine compliance with the applicable requirements of the Federal Aviation Regulations. However, unless otherwise authorized by the Administrator-- (1) No aircraft, aircraft engine, propeller, or part thereof may be presented to the Administrator for test unless compliance with paragraphs (b)(2) through (b)(4) of this section has been shown for that aircraft, aircraft engine, propeller, or part thereof; and (2) No change may be made to an aircraft, aircraft engine, propeller, or part thereof between the time that compliance with paragraphs (b)(2) through (b)(4) of this section is shown for that aircraft, aircraft engine, propeller, or part thereof and the time that it is presented to the Administrator for test.</i></p> <p>Person responsible for tracking modifications or replacements: <i>List the name and phone number of the person at the flight test location that will oversee this activity. On some projects, the flight test personnel removed LRU and returned them to the supplier for modification and failed to request a re-conformity. It is important that the applicant understands 14 CFR part 21.33(a)(2).</i></p>
<p>g. Flight Testing</p>	<p>Location(s) of TIA flight tests: <i>Provide the address, state, country where the flight test are to be conducted. Testing done outside the geographical area of the MIDO will require coordination with other FAA offices or foreign authorities before the TIA can be issued. Sometimes applicants do not know this information until later in the project. In this case, note To Be Determine (TBD). The MIDO should be notified about the proposed flight test area at least 1 month prior to flight testing. The MIDO will make the determination if the flight test area is acceptable in coordination with FSDO and the foreign authorities.</i></p> <p>Estimated date of flight testing: <i>The applicant must allow enough time for the designee to complete the TIA inspections. If this date is not known in the beginning of the program then that applicant can enter TBD, but must plan to have a flight test date selected to allow the FAA time to coordinate the TIA.</i></p>
<p>e. Conformity Inspection Deviations</p> <p>ref. 8110.4 Chapter 5</p>	<p>Name of DER / FAA engineer responsible to approve deviations and unsatisfactory conditions listed on FAA Form 8130-9 and FAA Form 8100-1: <i>If delegated to DER(s) or AR(s), then list their name(s), phone number(s) and discipline(s): The DER/AR list here can only approve engineering technical data within the limits of his/her authority by means of FAA Form 8110-3 or by signing an unsat condition on an 8100-1 written by a DAR/DMIR/ODAR. DER's and ARs must follow the procedures of FAA Order 8110.4, Type Certification Process.</i></p>

<p>Part VIII Airworthiness Certification and Return to Service at Completion of Program</p>	
<p>a. Who will make application (Form 8130-6) to FAA and where will the certification take place?</p> <p>Ref AC 21-12</p>	<p>Experimental certificate: <i>List the name, phone number and title of the person who will make application to the FAA.. Application for a U.S. airworthiness certificate must be made by the registered owner or an agent who has a notarized letter of authorization from the registered owner. This person must complete and sign the appropriate sections of Form 8130-6 prior to submitting it to the FAA.</i></p> <p>Standard airworthiness certificate: <i>List the name, phone number and title of the person who will make application to the FAA.. Application for a U.S. airworthiness certificate must be made by the registered owner or an agent who has a notarized letter of authorization from the registered owner. This person must complete and sign the appropriate sections of Form 8130-6 prior to submitting it to the FAA..</i></p>

SECTION 9 – INSTRUCTIONS FOR CONFORMITY INSPECTION PLAN

b. If required describe the plan to incorporate all approved design changes to the test aircraft in order to make the aircraft eligible for a Standard Airworthiness Certificate:

If a design change is made to previously inspected TIR items then it should be reported together with a suitable explanation of the condition to the MIDO and DAR responsible for issuing the Standard Airworthiness Certificate. In addition, the applicant and DAR should determine that all approved design changes made to the MDL are incorporated into production drawings and the aircraft configuration conforms to the APPROVED TYPE DESIGN BEFORE ISSUING THE AIRWORTHINESS CERTIFICATE. Many times last minute design changes occur after TIA testing and the aircraft have not been reworked to the final approved configuration person before making application for a Standard Airworthiness Certificate. The applicant’s plan described here should try to avoid aircraft being certified with a different configuration than approved by the FAA.

When design changes are made to previously inspected items they should be reported on an FAA Form 8100-1, Conformity Inspection Record.

c. Name and location of company(s) applying for PMA after issuance of STC: *The applicant would list their name if applying for PMA. If the applicant intends to issue a licensing agreement to a supplier then list those companies and locations. This information is helpful to determine if the company has previous experience as a PMA holder or if they are located in another country, etc.. Some applicants have entered into contract agreements with suppliers in other countries, telling the supplier that they can get FAA PMA approval. With this, the FAA can provide guidance about production approval.*

NOTE: *Parts, appliances, or manufacturing services furnished by any suppliers located in a foreign country may not be used in the production of any part or appliance unless: a. That part or service can and will be completely inspected for conformity at the manufacturer's U.S. facility; or b. The FAA has determined that the location of the foreign supplier facility places no undue burden on the FAA in administering applicable airworthiness requirements. When the use of such foreign suppliers are contemplated, the manufacturer must advise the FAA at least 10 days in advance to allow the FAA to make this determination; or c. The parts/services furnished by the foreign supplier are produced under the "components" provisions of U.S. bilateral airworthiness agreements, and approved for import to the U.S. in accordance with part 21 § 21.502.*

This Conformity Inspection Plan describes the actions regarding the repair, modification and type design activities necessary to ensure all required Conformity Inspections and related activities are accomplished in support of the project. The plan establishes guidelines and policies for identification and tracking of FAA required Conformity Inspections performed by at the applicant's facility and its approved suppliers.

The Conformity Inspection Plan will be reviewed and accepted by the Federal Aviation Administration prior to its implementation. FAA Conformity Inspections will be identified, coordinated and tracked for completion in accordance with procedures described above.

Changes to plan: Revision number shall control changes to this plan. Implementation of this plan will be to established procedures. Unforeseen circumstances may require those procedures to be revised or new procedures written.

No signatures necessary if attached to the PSCP plan

Applicant Quality Manager: Approval _____ Date: _____

Applicant Certification Engineer: Approval _____ Date: _____

ACO Acceptance: _____ Date: _____

Aircraft Certification Specialist (ACS) / MIDO Acceptance: _____ Date: _____

APPENDIX A

Under the new BASA IPAs, signatory countries accept the U.S. system of delegation as part of our aircraft certification system. However, these IPAs commit the FAA to notify the other country in advance of FAA designees or representatives of delegated organizations traveling to the country to make findings of compliance, witness tests, and/or perform conformity inspections. (This notification must occur regardless of the type of bilateral agreement in place.) The FAA Aircraft Certification Office or Manufacturing Inspection District Office responsible for those designees will coordinate these actions. FAA Orders concerning designee management (Orders 8100.8A, and 8110.37C) contains further guidance on how this should be done. (**Reference: Standard Operating Procedures for AIR International Activities** Revision 2--December 2002)

COUNTRY	SPECIAL REQUIREMENTS and PAST EXPERIENCE WITH DELEGATION	TYPE OF CORRESPONDENCE
China Civil Aviation Administration of China (CAAC)	Prefers FAA to send designees, resources are limited. May accept request but only after prior coordination.	LETTER + 8120-10
France, Direction Generale de L'Aviation Civile (DGAC)	Will accept all conformity requests. Should delegate all conformity inspections and test witnessing to DGAC. Conformity inspections and test witnessing should not be split between DGAC and FAA designees. If a DER must witness a test for some particular reason then the conformity inspection should be performed by a DMIR/DAR not the DGAC.	LETTER + 8120-10 May accept 8120-10 only with prior coordination on a project
Germany, Luftfahrt-Bundesamt (LBA)	Will only accept conformity request for LBA approved facilities. All other facilities a designee must be sent. LBA also has limited resources to conduct the inspections and may not accept the request.	LETTER + 8120-10 May accept 8120-10 only with prior coordination on a project
Italy, Ente Nazionale per l'Aviazione Civile (ENAC)	Will only accept conformity request for ENAC approved facilities. All other facilities a designee must be sent.	LETTER + 8120-10 May accept 8120-10 only with prior coordination on a project
Japan, Civil Aviation Bureau (JCAB)	See AIR-4 Policy Memo 98-1A dated 5-4-1998 titled "Interactions with JCAB Regarding Test Witnessing and Conformity Inspections"	LETTER + 8120-10
Singapore Civil Aviation Authority	Will accept part conformity requests.	LETTER + 8120-10
Canada Transport Canada Civil Aviation	Will only accept conformity request for Transport Canada approved facilities. All other facilities a FAA designee must be sent. Transport Canada also has limited resources to conduct the inspections and may not accept the request.	LETTER + 8120-10 May accept 8120-10 only with prior coordination on a project

Certification Authorities Contact List can be found at the AIR-4 intranet (*For FAA Internal Use Only*) <http://intranet.faa.gov/avr/air/air4/home.html>

Appendix B

ABC COMPANY

**AERO-100 QUALITY CONFORMITY INSPECTION PLAN (CIP)
FAA Project # ST2222LA-T**

Revision: A

Issue Date: 9-1-98

ABC Quality Manager	<u><i>Sam Smith</i></u>	Date: <u>2-10-02</u>
ABC Certification Engineer	<u><i>Ken J. Peabody</i></u>	Date: <u>2-10-02</u>
LA-ACO Acceptance	<u>Dave Nauuen</u>	Date: <u>3-10-02</u>
ACO Coordinator Acceptance	<u><i>Kurt Fulton</i></u>	Date: <u>3-10-02</u>
LA-MIDO Acceptance:	<u>Ken J Peabody</u>	Date: <u>3-10-02</u>

CIP CHANGE DOCUMENT

Changes to this plan shall be controlled by revision number. Implementation of this plan will be to established procedures. Unforeseen circumstances may require those procedures to be revised or new procedures written.

REVISION A

DATE 2-10-02

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1. AERO-100 General Description

- 1. AERO-20 to AERO-100 (See Attachment #1)
- 2. Master Certification Plan (See Attachment #2)

2. Definitions/Acronyms

AD	Airworthiness Directive	DMIR	Designated Manufacturing Inspection Representative
ACF	Advanced Common Flight deck	FSDO	Flight Standards District Office
ACO	Aircraft Certification Office	HMV	Heavy Maintenance Verification
CIRTS	Certification Inspection Requirements Tracking System	Aero-100	Aero-20 Airframe/Airplane Modified
MIDO	Manufacturing Inspection District Office	MJCS	Master Job Control Sheet
DAR	Designated Airworthiness Representative (Mfg./Maint.)	PDM	Post Delivery Modification
DER	Designated Engineering Representative	STC	Supplemental Type Certificate

3. Introduction to program

This Conformity Inspection Plan describes the actions regarding the repair, modification and type design activities necessary to ensure all required Conformity Inspections and related activities are accomplished in support of the AERO-100 Advanced Common Flight deck (ACF) parts manufacture, installation and certification. The plan establishes guidelines and policies for identification and tracking of FAA required Conformity Inspections performed at the ABC facilities and ABC approved suppliers. The Conformity Inspection Plan will be reviewed and approved by the Federal Aviation Administration prior to its implementation. FAA Conformity Inspections are identified, coordinated and tracked for completion in accordance with ABC-321 "FAA Conformity Process" and ABC-102 "Post Production Modification". Three (3) Transport-R-US Aero-20 aircraft will be utilized in the ACF Conformity Inspection and Certification Program. The modification effort will commence with the first Aero-20 inducted at ABC in March, 1999. Aircraft modification will be accomplished under cognizance of FAA Approved ABC Repair Station ML3333.

(See Attachment #3)

4. Developmental Organizational Chart

(See Attachment)

5. Roles & Responsibilities

5.1 Test & Evaluation

Flight Test aircraft will operate under the cognizance of ABC Repair Station ML3333 IPM and the applicable provisions of QAM X. Non-Production Flight Operations and Test-Commercial Programs.

Aircraft Maintenance will be accomplished by ABC Flight Test in accordance with QAM X .

Test Quality (TQ) will provide QA support during Flight Test operations to include:

<p>Certification Program:</p> <ul style="list-style-type: none">• Conformity Inspections• Issuance of 8130-9• Conformity Discrepancy Activity• Instrumentation Inspection <p>FAA Coordination</p>	<p>Aircraft Maintenance:</p> <ul style="list-style-type: none">• Pre/Postflight Inspections• Maintenance Release/Approval for Flight• Maintenance of Aircraft Records/Logbook• Inspection of part removals/installations• On-site shipping receiving inspections• Parts Disposal Area (PDA) Control <p>General aircraft maintenance inspections</p>
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6. FAA Approved ABC Repair Station

AERO-100ACF Maintenance and Modification Activities will be conducted in accordance with QAM X Inspection Procedures Manual for ML3333.

6.1 Personnel Requirements

Supervisory, Quality Assurance and Technical personnel must meet the certification and general requirements in accordance with QAM X, Section 4. All AERO-100 Program Supervisory and Inspection personnel will be listed on a roster that is maintained by the ABC Repair Station. All Personnel are subject to Anti-Drug/Alcohol Plan ID #8777.

6.2 Facilities

AERO-100 ACF Program aircraft will be housed in Building 2 of the ABC Facility located at 222 Airport Blvd., Los Angeles, CA 73429. (See Attachments 7.1 & 7.2) The facility will contain administrative, inspection, tooling and documentation/data offices. A secure Parts Disposal Area (PDA) and Receiving Inspection Area will be maintained in accordance with QAM X, Section 5, Paragraphs 6 & 7.

6.3 Maintenance Requirements and Inspection Systems

Aircraft will be maintained by the ABC Repair Station under the Transport-R-US Maintenance Program in accordance with FAR 91.409 (f)(1) as stated in QAM X, Section 5, Paragraphs 5 & 11. ABC will provide maintenance and Inspection personnel, as well as materials, to support this portion of the program. ABC Repair Station Quality Assurance will inspect and sign-off all modification job packages. QA will coordinate customer RII activity with Transport-R-US in accordance with QAM X, Section 5, Paragraph 12.5.

6.4 Required Documentation

The forms required by the ABC Repair Station for modification activity are ABC Form 65-450 Job Assignment Card (JAC) and ABC Form 2-348I Single Item Squawk (SIS). The Job Assignment Card is the standard work-planning document. It provides a detailed outline of the work and inspection requirements. This includes final acceptance blocks for the Technician, QA and Supervision. The JAC will be completed in accordance with QAM X, Section 6. After completion, the JAC is retained in the ABC Repair Station permanent records.

6.4 Required Documentation (cont.)

Completed MOD 2 conformity documents will be forwarded to the Post Delivery Modification (PDM) QA Project Manager for record retention in accordance with ABC-QA-208, Post Delivery Modification. For standard maintenance activity, the Single Item Squawk will be used to document discrepancies of the aircraft or a part. SISs must be disposition with FAA approved data. If a disposition requires engineering issuance of a repair drawing, and no FAA approved data is available, FAA Form 8110-3 must be issued.

For AERO-100 ACF modification activity, conformity inspection discrepancies will be documented on Form ABC 167, "Single Item Squawk" (SIS) and disposition for correction per engineering instructions. All SISs will be reviewed by Engineering and Eons will be issued for all items affecting ACF design. All changes will be incorporated in the top ACF drawings, reviewed by the Designated Engineering Representative (DER) and FAA Form 8110-3 issued prior to final approval of the ACF work package and returned to service. The SIS will be completed in accordance with QAM X, Section 5, Paragraph 15.0 and Section 6. After completion, it is retained in the ABC Repair Station permanent records.

6.5 Parts receiving and handling

The ABC Repair Station will utilize the established ABC FAA Approved Quality System and facility for the receiving of new parts and material. This is in accordance with ABC-111, ABC-444 and QAM X, Section 5, Paragraph 6.0. Notify the FAA of changes to the facilities. All new AERO-100 ACF parts that required an FAA Conformity Inspection will be verified for completion and presence of an FAA 8130-3 Form prior to installation in the aircraft.

All used parts received at the modification site must include an FAA 8130-3 Form or Transport-R-US Serviceable Tag to verify airworthiness. Customer Furnished Equipment (CFE) or parts will be impounded and controlled separately from ABC furnished parts and materials. Some of the Transport-R-US CFE may be used parts. Parts authorized by an SIS or JAC for removal from the aircraft to gain access for modification work or for replacement must be identified with ABC Form 345 Part Removal Tag. The part will be processed through the PDA for inspection and disposition in accordance with QAM X, Paragraph 7.4.

6.6 Audits - Internal

The ABC Repair Station will perform "Self-Audits" of the AERO-100 ACF Program and Facility in accordance with QAM X, Section 5, Paragraph 22.0. The Self-Audit will determine the adequacy of and compliance with applicable requirements, ABC Repair Station systems, processes and procedures. The audits will be conducted on an on-going basis with frequencies adjusted as deemed necessary by the Chief Inspector.

6.7 Airworthiness Determinations

ABC Repair Station Chief Inspector or designee will conduct inspections and documentation review as needed to make airworthiness determination relating to satisfactory completion of AERO-100 ACF work packages, transition check, Module 2 and Flight Test program completion. Log Book entries will attest to airworthiness of the aircraft with respect to the work performed.

6.8 Foreign Object Damage (FOD)

ABC FOD/Housekeeping program is the continual attainment of FOD free products from a FOD free work environment. The emphasis of the program is the elimination of the potential sources of FOD (ref. ABC-162).

7. ABC Conformity Inspections

7.1 FAA Conformity Inspection Guidelines

The criteria for identifying the parts, assemblies, installations and functions requiring FAA Conformity Inspection will be in accordance ACO and MIDO Guidelines. Each drawing will be evaluated (who will be responsible and accountable to do this evaluation???) to established criteria to determine the level of FAA conformity required. Additionally, once the drawings have been categorized, the parts on the drawing will be evaluated against the same criteria. Only those parts identified as Class 1/Critical and installations that are categorized as Class 1/Critical or Class 2/Complex will be recommended for FAA Conformity.

Class 1/Critical – Parts/assy's and or installations whose failure would be hazardous (i.e. conditions that may cause injury, system damage, or result in a mishap.) Examples include: Avionics equipment and instrumentation, flight control systems, Oxygen systems and components, fire detection and suppression systems, new electrical wiring harnesses, etc.

Class 2/Complex - Parts/assy's and or installations that are complex in nature or integrate into existing aircraft systems. Examples include: Water and waste systems, complex galley/electrical installations, avionics and antenna installations, electrical wire routing installations, insulation and sound barrier installations, installations involving attachment to existing aircraft structure.

Class 3/Miscellaneous/Non Essential - Parts/assy's that are not required for transport type aircraft whose failure will not constitute a hazard when installed in accordance with AC 25-10 or other FAA approved data. Examples include, telephones, stereo systems, logo lights, storage closets, drink rails, window shades. Installation FAA conformity is still required especially electrical wiring.

7.2 Conformity Inspection Tracking

FAA identified Conformity Inspections shall be recorded in the Conformity Inspection Requirements Tracking System (CIRTS) database for tracking and historical purposes. The CIRTS database shall be utilized to record all scheduled and completed Conformity Inspections. The CIRTS database shall be used to substantiate completion of all required Conformity Inspections. Each Conformity Inspection shall be closed when objective evidence (FAA Forms 8130-9 or other equivalent form) is provided to the appropriate QA Representative. When available, serial number and software load shall be recorded from FAA form 8130-3 in database. FAA Conformity Inspection status will be maintained and reported to the FAA Certification Management Unit (MIDO) as requested.

7.3 Conformity on Flight Simulator and/or Test Benches

Should there be a requirement to use the Flight Simulator/Test Benches configured to unique AERO-100 needs to obtain FAA credit in the Certification Program, FAA Conformity Inspection will be performed on the portion of the simulator/test benches used for FAA Certification Testing. If requirements are identified unique to the AERO-100 and tests are needed, the baseline shall be altered. A drawing and software control system shall be maintained to track changes & modifications. FAA form 8130-9 will be prepared and presented for FAA acceptance prior to testing for FAA credit.

7.4 FAA Conformity Inspection during Test and Evaluation Custody

After the AERO-100 prototype aircraft are completed, they will be placed in the custody of ABC Test and Evaluation (T&E) for flight test portion of the Type Certification Program. T&E will also have test articles/set-ups (lab testing) used in FAA Certification Testing. The Quality Assurance System that provides the controls to maintain the quality of Aircraft/Test Articles is described in QAM X.

7.5 FAA Engineering Requested FAA Conformity Inspections

FAA Conformity Inspections are performed on test articles/test set-up when required by FAA Engineering. The Certification Plan identifies how compliance to the FAR requirements will be accomplished (e.g. ground test, flight test, analysis, similarity). When FAA compliance testing of the test article(s) is specified in the Certification Plan, a Test Plan is prepared (sometimes part of Certification Plan) that recommends items to be FAA Conformity Inspected. The Test Plan is prepared by ABC Engineering and submitted to FAA Engineering through the ABC Airworthiness Office. ABC Engineering/DER will obtain FAA ACO concurrence on the conformity requirements and submit a Conformity Request via the CIRTS database in accordance with ABC-567.

7.6 Conformity Inspection Discrepancies

Conformity Inspection Discrepancies will be documented on SISs and disposition for correction per FAA Engineering instructions. All SISs will be reviewed by FAA Engineering or FAA DER and EOs will be issued for all items affecting ACF design. All changes will be incorporated in the top ACF drawing, reviewed by the (DER) and FAA form 8110-3 issued prior to final approval of the ACF work package and Return to Service (ABC-789). All parts identified as non-conforming to ACF design due to workmanship, no-fit conditions, or design changes may require re-fabrication. Re-fabrication will be done within the ABC Quality System. Parts re-fabricated will require a new Conformity Inspection and 8130-9 submittal to FAA/Designee for issuance of a new 8130-3.

8. First Article Inspection (FAI)

FAI shall be performed in accordance with requirements. (Ref. ABC-QA-011, First Article Inspection/Fabrication/Assembly/Delivery and First Article Verification Inspection; Ref. ABC-QA-152, First Article Inspection-Verification Source/Receiving; Ref. ABC-9000 Supplier Quality System Requirements.

8.1 Parts at Suppliers

First article inspections at suppliers will be handled per ABC-9000.

8.2 Installations

First article inspections will be accomplished per ABC-878.

9. Tooling Inspection

9.1 Fabrication/Assembly Tooling

Tooling used to fabricate or assemble parts for the AERO-100 modification, this includes Production Test Equipment (PTE), will be verified by ABC Tooling Inspection in accordance with ABC-124, Tooling Inspection.

10. Material Review Process

10.1 Owner/Operator

Discrepancies noted during maintenance operations will be recorded on Transport-R-US non-routines. Owner/Operator will disposition all non-routines generated or originated by Airline Maintenance Card activity.

10.2 New Installations

Non-complying items that adversely affect airworthiness will not be accepted by Material Review action. Such non-conformances require Engineering action documented on form ABC - 356 (Series) Engineering Order (EO). Material Review action on items that require a FAA form 8130-9, Statement of Conformity, will have the material review documentation identification number(s) listed on the form 8130-9 (Ref. ABC-663, FAA Certification of Prototype Parts/Assemblies, Test Articles and Aircraft). Copies of the material review documents will be attached to FAA form 8130-9 when presented to the FAA. (Ref. ABC-885, Material Review Process Prior to Type Certification/Production Certification).

10.3 Deviations

Supplier MRB dispositions on deviations from Engineering drawings or specifications are not the final Engineering acceptance authority on prototype parts/assemblies. Copies of these material review documents are submitted to ABC Designee/MRB Support for review of non-compliance's and dispositions to verify that material review action is acceptable to the applicable FAA DER and FAA Engineer. The assembly and/or shipping process may continue during the review. Any component determined to be unacceptable or non-compliant will be removed or replaced. (Ref. ABC-166)

11. ABC facilities

11.1 Passenger to Freighter Completion Site Activity

- X Repair – 2344 Air flight Rd Goodyear, AZ
- Repair-R-US – 222 D lane, Paris, France
- M&M Aerospace – 1157 Grand Ave, Canton, Oh

12. Suppliers

The Quality Assurance Statement of Work in the Basic Agreement (BA) contains ABC-9000, and specifies the requirements the supplier and ABC must comply with in order to support the Type Certification Program.

13. Software Configuration/Conformity Process

AERO-100 Software Conformity is reviewed/verified according to an agreed to and documented software design and development process on life-cycle basis. The Radio Technical Commission for Aeronautics, "Software Considerations in Airborne Systems and Equipment Certification" document number RTCA/D0-178(1) is utilized by ABC and supplier engineering as a guide in obtaining product certification from the FAA. ABC Software Quality Assurance ensures that software development disciplines meet D0-178 and ABC 9000 criteria.

During flight testing development, the software status of each affected Line Replaceable Unit (LRU) will be identified by means of a label affixed prominently. The label will reflect the LRU system part number, software program identification and list of the changes incorporated. Detailed documentation of each change will be maintained.

(1) This nomenclature references the applicable revision of D0-178 (i.e. the D0-178 revision mutually agreed upon at the time of the initiation of the specific certification project). At the publication of this document, 12/17/93, D0-178B has been issued and authorized by 20345B. Software loading of LRUs shall be in accordance with ABC-339, Loading Operational Software and ABC-099, Software Media Transfer and Software Loading.

14. Development

The development of structural and electrical requirements for the AERO-100 modification will be coordinated through Engineering Special Products (SP) drawings. Work will be handled with Fabrication Outlines (FO) and Advance Assembly Outlines (AAO) in accordance with ABC-056, FO Processing Development and ABC-057, AAO Processing-Development. Mechanical Development activities will include: Center Avionics Components (CAC) and Nose in accordance with ABC-058, Mechanical Development Inspection; ABC-013, Development Fixtures - All Models and ABC-204, Development.

Electrical Development activities will include: Center Avionics Components (CAC) and Nose in accordance with ABC-012, Wire Development/Wire Jigboard Control/Digitizing Control; ABC-013, Development Fixtures - All Models; ABC-141, Computer-Aided Wire Assembly Design and Development; ABC-206, Electrical Wiring and Wire Data Management and ABC-207, Loft Patterns.

15. Fabrication

Inspection will control parts produced by ABC Fabrication in accordance with the following:

ABC-011 - First Article Inspection Fabrication/Assembly/Delivery and First Article Verification Inspection.

ABC-072 - Fabrication Inspection/Fabrication Outline Processing

ABC-140 - Failure and Rejection Report

ABC-135 - Fabrication Outline

16. Planning - Work Cards (WC)

AERO-100 modification activities will be documented on Work Cards (WC) in accordance with Production Planning Procedure (PPP) 2345, Handling of Aircraft After Issuance of Certificate of Airworthiness (C of A) - Code 7. WCs for AERO-100 modification will be color-coded as follows: #1 **MOD 2** - Top edge will be RED and identified with block stamp "**MOD 2**". #2 ACF - Top edge will be GREEN and identified with block stamp "**ACF**".

17. ABC Design Configuration Control

ABC engineering drawing required for the AERO-100 modification (including Non-dimensioned, Service Modification, Special Products and Variation) will be prepared and maintained in accordance with ABC-888, Drafting Manual. The design and Configuration Control Process is outlined and recorded in the "G-6 Issue Paper" titled, "Definition of Type Design prior to Modification" for FAA Project #AT0001LA-T. (See Attachment #6)

20. Issuance of Special Flight Permits

20.1 Experimental Certificate

Will be issued by a DAR with MIDO direction per FAR 21.19 (b) for the flight test of ACF.

20.2 Standard Airworthiness Certificate

Will be issued by FAA/FSDO or DAR per FAR 21.183 (d) when AERO-100 conversion completed.

* 8110 & letter to amend the type data sheet.

Attachments

1. AERO-100 Program Overview
2. AERO-100 Master Certification Plan
3. ABC Repair Station vs. Production - Operational Differences
4. Roles & Responsibilities - Expanded Definition
5. Record Summary - G6 Response, FAA Project #AT0001LA-T

**ABC AERO FAA Conformity Matrix for Project # ST10020LA-T
Current Master Drawing List 0340800 Revision B dated 11/11/02**

Quality Assurance Bill Jones Date 5-3-2002

FAA Acceptance Scott Hummel Date 5-20-002

Drawing & rev	Category Class 1,2,3	Part #	Part Description	Parts to be Conformed		Installation drawing #	Installation Description	Installation to be conformed	
				FAA	Applicant			FAA	Applicant
717 MLG Landing gear Top Dwg # Rg3200									
Rg32001 REV B	1	Rg 32001-101	Drag brace	X	X	Rg3200-01	Landing gear backup structure	X	X
Rg32002 Rev n/c	3	Rg 32002-105	Bracket		X	Rg 3200-01	Hydraulic hose bracket	X	X
717 Fuel System top Dwg # Rg 2800									
Rg 28002 rev c	1	Rg 28002-001	Boost pump	X	X	Rg 28002-01	Left wing # 2 tank	X	X
Rg 28003 Rev a	1	Rg 28003-ER1	Elect wire assembly	X	X	Rg 28003-ER01	Boost pump wiring	X	X
Navigation System Top Dwg NX3400									
NX34234 Rev b	2	NX34234-1	Doppler Antenna TSO approved		X	NX34002-111	Lower fuse	X	X
Battery Top Dwg BX 2400									
BX24999 rev 3	3	24999-bc	Battery backup		X	2400234	E&E bay		X

Guide for Heat Treatment Conformity Inspection This guide has been developed for conformity inspections of heat treatment processes and parts. These questions/statements are memory joggers that can impact the heat treatment process. Should the answer be negative it may be necessary to note that on the conformity inspection record 8100-1, if that subject is applicable to the part in question.

Heat treat processes are complex, varying with chemical composition of material and the desired characteristics for parts. These characteristics include strength, hardness, and ductility, all of which contribute to the machine ability of the material. Heat treat involves heating and cooling material to give it certain physical characteristics. Some procedures are applied to the stock prior to machining while others are applied to the parts, after machining. All of these processes are controlled by the chemical composition of the material, temperature, and the rate of heating and cooling.

Heating: Prior to heat treating, steel is considered soft. Heat is applied at such high temperatures that the atomic structure of the material is altered. The maximum temperature and the cooling method alter the material to a more desired state. The temperature at which steel properties change depends on the specific chemical content. The critical point is the temperature above which the material will harden when quickly cooled. For most steel, the critical point is between 1200 F and 1800 F.

Fast cooling: When steel is heated to such high temperatures, it must be cooled so the steel is left with the desired physical properties. Quick cooling, or *quenching*, is done in a number of environments, including air, water, oil, sand, and chemical baths. Rapid cooling locks in the chemical changes created at the high temperatures, resulting in harder steels. Water is a quick and inexpensive medium for quenching. With low carbon steels, water quickly cools the material, increasing its hardness and strength. Quenching with oil and air results in slower cooling, which means less strength and hardness. The trade off? Quicker cooling leads to stronger, harder materials, but it also means more distortion and cracking of the material.

Slow cooling: Slower cooling results in softer, more ductile steels with less strength and hardness--but with less cracking and distortion. One type of slow cooling is *normalizing*, which cools material at room temperature. Normalizing is a much slower process than quenching and results in steel that is easier to machine.

Annealing is even slower than normalizing. The heated material is placed in a temperature-controlled oven and cooled very slowly. The hardest material is achieved by quenching in water. This process also results in a brittle material with high internal stress. Annealing provides the most ductile material with the least amount of internal stress, but this is also a softer, weaker substance.

Carbonizing: Carbonizing adds carbon and/or nitrogen to the outer skin of machined parts by forcing machined parts into direct contact with a solid, liquid, or gas, containing large amounts of carbon or nitrogen. Because of the direct contact, the chemical is transferred to the outside of the parts. Once the carbon transfer is complete, the chemical change must be locked in. The parts are heated and quenched to achieve a hardened state. This process gives the parts a hard outer surface, while keeping the softer, more ductile inner material. This is an ideal solution for parts that need a tough, outer film, and a flexible core.

Distortion: All heat treat methods have one major drawback: distortion. Heating and cooling of stock and parts alters the chemical composition as well as the physical dimensions of the material. Distortion is both growth and shrinkage of parts. The trick is to know which will occur. Physical alteration depends on many factors. The science of metallurgy is devoted to the study of these properties and the interaction between them; any metallurgy textbook will review this topic in great detail.

Stock allowances: Manufacturing plans often include rough machining, heat treatment and then finish machining, generally a grinding process. It is vitally important to employ the proper stock allowances in rough machining. Too much stock results in excessive grinding and parts with small stock allowances will not clean up. A good rule of thumb allows 0.007'' per surface.

1. What types of heat treatment is being performed at the facility:
 Homogenize Stress Relief Normalize Heat Soak Anneal Tempering/Quenching Age Hardening Other:
2. Is heat treating specification DER or FAA approved?
3. Is the heat treating specification listed on the part drawing?
4. Are the heat treatment operations performed by a continuous process or individual furnace loads?
5. If a continuous process is used, is the following information documented completely?
 - a. Specific equipment identified (e.g. model numbers):
 - a. Heat source type identified:
 - b. Location:
 - c. Controls:
 - d. Placement of temperature monitoring equipment (i.e. thermocouples):
6. If individual furnace loads are heat treated, is the following information documented completely?
 - a. Furnace type (e.g. car bottom, front load or side load). Including make or model number if possible:
 - b. Burner controls, including method of on/off switching:
 - c. Placement of temperature sensors (thermocouples) - In the oven or on the Product:
 - d. Method of loading furnace(s):
 - e. Method of unloading furnace(s):
 - f. Method of cooling, including transport to cooling location:
 - g. Does the furnace have sufficient temperature sensing devices to insure uniform furnace temperature?
7. Does supplier's procedures address fuel source's requirements?
8. Do supplier's equipment contain mercury?
 - a. Is it identified?
 - b. Are necessary controls in place to prevent contamination of the part?

9. Do the procedures contain parameters which meet applicable specifications (e.g. MIL-H-6875, MIL-STD-1684) for time and temperature?
10. Is a traveler or equivalent work process control document utilized?
11. Does the work process control document contain requirements for time, temperature, cooling methods and documentation requirements?
12. Are time and temperature charts produced? If not, what alternative controls are used:
- a. Are the at-temperature charts traceable to the material?
13. What is the method utilized to confirm successful heat treat to specific required mechanical properties?
(hardness, tensile testing, etc.).
- a. Does this method meet the specified requirement?
- b. Does the procedure ensure test coupons are heat treated together with the material?
14. Is there an approved procedure for resolving nonconformances on heat treated material?
15. Does the company have a system for calibration of the temperature control equipment? (e.g. controller, thermocouple, lead wire):
16. Are heat treating and test equipment (including hardness testing) identified in a manner to reflect (ISO 4.11.1)
- a. Are personnel responsible for performing calibration inspection identified?
- b. Is equipment number or serial number identified?
- c. Is calibration current?
- d. If calibration is subcontracted, are sufficient subcontractor controls in place?

HEAT TREAT OVEN SURVEYS (e.g. MIL-STD-1684)

1. Does the supplier have a system for documenting the heat treat oven/furnace survey?
2. Has the survey been performed at the correct time interval?
3. Has it been done at the correct temperature?

HEAT TREAT WORK IN PROCESS

1. Is heat treating being performed to approved specifications?
2. Is/Are the furnaces and controllers calibrated?
3. Is the temperature correct?
4. Is the correct cooling method/medium being utilized?
5. Are personnel cognizant of parameters (time, temperature cooling method) required by procedure/s and work instructions?
6. Are results being properly documented (furnace charts)?
7. Are approved heat treat specifications readily available to operators?
8. Are heat treat procedures and control documents readily available to operators?
9. Is traceability being maintained and is the material being heat treated identified by heat number, batch number, serial number or equivalent to assure material control and prevent material mix up?
10. Are test coupons being heat treated together with the material?

This guide has been developed for inspections and conformities during the manufacturing of composite parts and assemblies. These questions/statements are memory joggers that can impact the entire composite manufacturing process. This checklist may also be helpful to engineers reviewing process specifications. Should the answer be negative it may be necessary to note that on the conformity report, if that subject is applicable to the part in question.

A. Receiving Inspection of Materials (note that additional visual inspections for defects in a roll of material should be continuously performed during fabrication steps, e.g., ply lay-up)

1. Have all receiving inspection tests been done for each batch used, and are the results in compliance with the specification acceptance limits?
2. Are there “TBDs” in the specification? (If TBDs are present, an unsat should be written, and cleared when the values are available and have been compared with the receiving inspection limits)
3. Were test panels prepared and inspected in accordance with specification limits?
4. Do test panels represent production parts?
5. Are test specimens taken from various locations within the material?
6. Are traveler panels used, and if so, were they prepared in accordance with specification limits? (Leave an open unsat if testing is pending)
7. Does the fabric weave style meet the specifications?
8. Does the specification call out number of yarns per inch and can it be inspected?
9. Does the bi-directional fabric have tracers which identify warp and fill yarn direction and warp and fill faces per the specification?
10. Does the certificate of conformance from the vendor show the manufacturing date?
11. Are warp tracers spaced across the width of the fabric per the specification?
12. Does the honeycomb core configuration and density meet the specification?
13. Does the specification require inspecting the honeycomb cells for signs of separation?
14. Do procedures assure shelf life of material include transportation time?
15. Are freezer strip charts used during transportation?
16. Are strip chart durations adequate to record transportation periods?

B. Molds/Tools

1. Is the mold/tool contour in conformance with the engineering drawing limits?
2. Are mold release compounds applied in an area separate, or outside of the lay-up areas?
3. Is traceability provided from the mold/tool back to type design?
4. Is there a written process for periodic calibrating of molds/tools, and is it followed?

5. Does the mold/tool show when the last, and next, calibration was, or is to be, performed?
6. Is there a record of any repairs/rework performed on the mold/tools?
7. What is the mold/tools surface quality (nicks, scratches, handling damage)?

C. Material Handling and Storage

1. Are shelf life and temperature limitations established for all sensitive materials?
2. Are all materials used in the part within their storage limitations?
3. Are frozen materials protected in sealed bags, and are the bags resealed and water tight, before re-freezing?
4. Are temperatures recorded, and are the recorders maintained per the specifications?
5. Are frozen materials allowed to thaw prior to opening bags?
6. Is the thawing area humidity controlled?
7. Is the lay-up room temperature and humidity controlled?
8. Are air tools used in the lay-up room and, if so, are appropriate precautions taken to eliminate oil contamination?
9. Are mold release compounds allowed in the lay-up room?
10. Are lay-up technicians using gloves, and are the gloves clean and talc free?
11. Are food and beverages allowed in the lay-up room?
12. Is positive pressure and air filtration required in the lay-up room?
13. Are their provisions so technicians don't have to walk directly on uncured surfaces on large parts?
14. Are parts in process covered when not in work?
15. Are all materials that come in contact with the finished part controlled by specifications?
16. Does the refrigerated material possess sufficient room temperature working life?
17. Is there a process for documenting the material in-time and out-time from the freezer?
18. Upon the expiration date of the material does the specification allow for extension periods after the material was inspected and/ or tested?

D. Ply lay-up

1. Is the shape of each ply controlled in the type design?
2. Are templates used to control ply shape per drawing?
3. Are templates inspected/calibrated and the information recorded for them?

4. If automated ply cutters are used, are the data files traceable to the type design?
5. Is the location of each ply controlled in the type design?
6. Is the orientation of each ply controlled in the type design?
7. Are the plies placed in the mold in accordance with the orientation and locations specified?
8. Is the ribbon direction on honeycomb core controlled in the type design?
9. Are the core chamfers per drawing?
10. Is the core dry before lay-up?
11. Are core splices done in accordance with spec requirements?
12. Is there dust from core machining left on the part?
13. Do the drawings specify areas where core splices are not allowed?
14. Are ply splices done in accordance with specification requirements?
15. Do the drawings specify areas where ply splices are not allowed?
16. Are corner details, like pleats, addressed on the drawings?
17. Are pleats/corner details done according to drawing requirements?
18. Are plies trimmed when they are added to the mold, and is the trim per drawing?
19. Has a coupon been constructed for the parts? (This can be a tab on the part that can be removed from the part after cure for testing.)
20. Has lay-up taken place at a temperature and humidity within spec requirements?
21. Are all fibers of the prepreg completely wetted by the resin?
22. Is there sufficient tackiness in the prepreg to lay a complete contoured part?
23. Are prepreg defects discovered during lay-up within specification allowances?
24. How are lay-up technicians trained to respond to any evidence of ply surface moisture?
25. What is done to ensure prepreg backing paper does not end up in the lay-up?
26. How is ply trim and waste (e.g., layers with defects beyond allowances) controlled?

27. How is the time from start of lay-up until part cure tracked?
28. Does the specification require a positive pressure to be maintained in the lay-up room to prevent contamination from the outside?

E. Cure Process Control

1. Are their appropriate controls over laminating resin mix ratios using calibrated scales?
2. Are fillers and additives, if used, in controlled quantities per specifications?
3. Do thermocouples have a correction factor recorded on them, and is it included in readings?
4. Are thermocouple locations specified in the manufacturing planning and specifications? (This can be done in many ways, but often a temperature survey of the mold is conducted and the thermocouple locations are determined from that. Particular attention should be paid to thick and thin areas of the part due to exotherm issues. Epoxy resins release heat during cure. If not controlled, this can be a problem)
5. Are both the part and oven thermocouple readings in compliance with the specification cure cycle?
6. Are the temperatures and vacuum/pressures in compliance with the process specifications?
7. Have oven/autoclave uniformity surveys been conducted within the proscribed intervals?
8. Did the cure begin before shelf life limited materials expire?
9. Are the oven controllers, recorders and thermocouple outputs calibrated?
10. Are vacuum bag leak checks done?
11. Does the specification identify debulking and pre-bleeding methods?
12. Are release-film, separators, bleeders, and breathers required and are they being used?
13. Do all components entering a particular autoclave or oven run follow the same cure cycle?
14. What provisions exist to control and track the number of autoclave or oven cycles experienced by a given part, which undergoes repair and rework?

F. Bonding Surface Preparation

1. Has the peel ply been removed from the joint?
2. Is there any evidence of contamination under the peel ply surfaces?
3. Are peel plies kept in place until bonding?
4. If sanding is used, is the whole bonding surface abraded, with no damage to fibers?
5. If grit blasting is used, is the grit kept clean and free of contamination?
6. How often is the grit media replaced?

7. Are the type of grit and the pressure settings per specification?
8. Is loose grit kept out of bonding surfaces?
9. Is water used in water break free testing in accordance with applicable specifications? (should be deionized water with specific cleanliness standards)
10. Are parts dried properly after water break free tests?
11. Are solvents used to clean bonding surfaces of the appropriate grades per specifications?
12. Is the bonding done within the time limits after the surface is prepared?
13. Are bond line thickness measurements conducted per applicable specifications and are the results acceptable?
14. Have any required test panels been prepared in accordance with applicable specifications? (If testing is pending, leave open unsat)
15. Do the test panels represent the actual bonding surface prep? (If the part has peel ply, do the panels, is the grit blasting the same, solvent wipe, water break free test etc.)
16. If composite to metal bonding is used, are approved surface preparation methods used for the metal surface (phosphoric acid anodizing, grit-blast/silene, etc)?

G. Secondary Bonding and Co-curing

1. Is the correct type of adhesive (foam or film) per specification used in the assembly?
2. Is the amount of adhesive, as called out in the specification, being applied to the bonding surfaces?
3. Does the specification require application of a primer for bonding composites to metal surfaces?
4. Are technicians wearing clean gloves?
5. Does the specification take into consideration of filling gaps with adhesive?
6. Are part tolerance measurements within drawing requirements before proceeding with bonding?
7. What is done to ensure any release agent or other contamination from bond tooling aids don't come in contact with bond surfaces?
8. Are bonding fixtures used to ensure geometric accuracy in holding the two bonding surfaces in place during adhesive cure?

H. MIXING ADHESIVE AND BONDING

1. Is there some verification that the proper mix ratio for part A & B are used per the specification? (different colors for part A and B are a good aid here)
2. Are process verification tests accomplished to verify adequate cure, hardness, etc?
3. If fillers are required, are they added per specification and recorded?
4. If beads are added for minimum bond-line control, has the ratio been specified and recorded?

5. Are adhesive application requirements per the specification?
6. Is the spew (excess glue squeezed out) smoothed out before the adhesive cures? (This is often a finger fillet, and can have a significant effect on the strength of the joint)
7. Are post bond operations per specifications, i. e.: excess adhesive removal by grinding or sanding, etc to provide a flush surface?
8. Are there special conditions in the specification that address continued operation when the temperature, humidity, pressure, vacuum, etc exceed the specification requirements?
9. Are closed areas, like inside fuel tanks, checked for debris like excess glue, sanding dust, old gloves, bag film etc. before access is restricted? (this is one of the leading causes of fuel starvation on takeoff for amateur built aircraft)

I. Drilling & Cutting Composites

1. Are the saws and drill bit types (high speed steel, diamond, tungsten carbide, etc.) being used to cut or drill the panels identified by the specification?
2. Does the specification identify the minimum tooth design for saw blades?
3. Does the specification require two step drilling of hybrid structure?
4. Does the specification require a drill block on the backside of the panel to prevent broken and separated fibers at the drill exit side of the hole?
5. Are there delaminations inside the hole?
6. Are the machining speeds and feed rates within specified requirements?
7. Is there any evidence of heat damage in the machined composite?
8. Are the methods used to cool tools and the work piece properly maintained and operating?
9. What criteria is provided in the specification to remove saw blades and drill bits from the factory line when they reach wear limits?
10. Are edge distances per drawing? (The metal standard of 2D +.03 doesn't apply in most cases in composites)
11. For bolted joints, is the fit up/shimming per specification? (excessive clamp up can damage the parts)

J. Non Destructive Inspection: (Refer to NDI checklist as well, the part is not complete until the NDI is done when required)

1. Is the type of NDI called out on the drawing?
2. Are surfactants added to water used as a UT couplant? If so, is contamination addressed (e.g., pre-cured parts that get NDI before bonding)?
3. During UT inspection, is water able to penetrate into core materials? If so, is it dried after inspection?
4. Are allowable defects clearly identified in the specification?

5. Are required NDI inspections performed in accordance with Tech cards and process specification requirements?
6. Are Tech Cards Level Three approved?
7. Are the appropriate NDI standards available and in use?
8. Is there accept/reject criteria in the NDI (e.g., tap test) specification for porosity, voids, or disbonds?
9. Does the tap test specification identify the tool used to perform the test?
10. Does the tap test specification identify the acceptable or unacceptable acoustic response that can detect the flaws or defects in the part?
11. Does the tap test specification require periodic hearing tests?
12. Are limits established for visual defects like nicks, scratches, impact damage, porosity, delams, wrinkling etc, and are the limits complied with?
13. Are completed parts checked for warpage and thickness variation, which are controlled within drawing and/or manufacturing spec requirements?
14. How often is NDI equipment calibrated?
15. How often is NDI equipment subjected to maintenance?

K. WORKFORCE TRAINING

1. Are technicians trained for all process steps in which they are involved?
2. Is there a mentoring program for new technicians involved in the more critical process steps (e.g., bond surface preparation) before they are allowed to work on their own?
3. Is the workforce educated on approved changes in materials and processes?
4. Is the workforce evaluated for continuous competency?

This guide has been developed from the FAA Policy Statement Number ANM-01-04, titled “System Wiring Policy for Certification of Part 25 Airplanes”. Any conformity inspection performed for installation of electrical assemblies, wires, harnesses etc, should follow this guidance. The questions and or statements should be used as memory joggers that can affect how a conformity inspection is accomplished by the FAA inspector or designee. Should the answer be negative it will be necessary to note that on the conformity inspection report 8100-1 and request corrective action. Installation conformities are performed by qualified Designees with knowledge of aircraft electrical installations.

- A. The type and quality of data required for type design data packages and requirements for Instructions for Continuing Airworthiness are indicated in the regulations in section § 21.31 “Type design”. Section § 21.33(b), also provides additional insight as to the contents of the type design data package. Paragraph B and C below defines the two types of design approvals and the degree to which the inspections should be accomplished.

- B. Multiple approvals are approvals used for modifications that may be installed on any airplane of a specific type. These approvals require design data to define the installation so that it may be duplicated on another airplane by an installer. It is FAA’s policy to require that type design data for multiple approvals include the following:
 - 1. Do drawings completely define the configuration, material, and production processes necessary to produce each part in accordance with the certification basis of the product?
 - 2. Do drawings reference specification applicable to the installation of electrical components, harnesses?
 - 3. Do drawings completely define the location, installation, and routing, as appropriate, of all equipment in accordance with the certification basis of the product?
 - 4. If the modification being approved is a change to a type certificated product is the modification equivalent to and compatible with the previously approved type design standards?

- K. One-only approvals are approvals specific to the modification of only one aircraft by serial number. These modifications are often referred to as “one-only approvals.” For one-only approvals, duplication of the installation is not necessary and following (different) data standards may include:
 - 1. The use of photographs and other similar data to document the modification?
 - 2. Does the wiring diagrams and installation drawings contain the necessary information for proper installation?
 - 3. Do drawings adequately and clearly define the configuration of the model to be certificated?

L. Drawing review:

- 1. Do drawings completely define specific routing and installation of wiring on the aircraft?

2. Do drawings or specifications identify specific clamping methods?
3. Verify that drawings do not leave the installation of the wiring to the discretion of the installer?
4. Are the installation and routing practices compatible with the standards established for in the original type design?
5. Do installation drawings and instructions completely define the required routing and installation with sufficient detail to allow repeatability of the installation?
6. Verify that drawings do not reference standard practices or other general guidance for installation details?
7. Verify that drawings do not include statements such as “install in accordance with industry standard practices,” or “install in accordance with AC 43.13.” (The FAA considers such statements inadequate because the standard practices cannot define the precise location or routing of the wiring)
8. Verify that drawings do not provide an abbreviated version of the installation and routing specifications that are used in the maintenance manuals. (These specifications may not be readily available to modifiers. This can result in “inadvertent non-compliance” with certification requirements)
9. Verify that guidance that is general in nature does not offer installers multiple options for compliance?
10. Do the drawings include a complete definition of the parts, including wiring and wire installation hardware, which clearly and completely identify, shape, material, production processes, any other properties affecting strength or functionality of each part, and the arrangement of each part in the final assembly?
11. Do drawings identify the material specification, heat treat, corrosion protection or other finish, and any other important characteristic of each part subject to test or analysis for showing compliance with the airworthiness requirements?
12. Do the drawings show, wire separation, wire types, wire bundle sizes, brackets, and clamping requirements?
13. Does the applicant use Original Aircraft Manufacturer (OAM) design standards and/or practices for a given installation? If so is the OAM specification shown on the drawing?

M. Specification review:

1. Verify that manufacturing process specifications are included referenced in the drawing pertaining to wiring installation details.
2. Does the specification show acceptable measurements between wire harnesses and structure to prevent chaffing? The specification should not make references such as wires should not contact sharp surfaces, such statements are ambiguous and leave interpretation to the installer.
3. Does the specification require grommets or other protective devices to be installed to prevent chaffing of structure?
4. Does the applicant provide wiring diagrams showing source and destination of all airplane wiring associated with equipment installation?
5. Has the applicant included detailed requirements for the items in Paragraph G below? If not is the requirements covered in the drawings or wire diagrams?
6. Does the specification call out a clean as you go policy to protect the wires?

N. Installation inspections: Support and clamping methods -

1. Are plastic tie wraps installed using a special clamping tool to ensure adequate tautness?
2. Are wire bundles sagging beyond drawing limits?
3. Are electrical wires properly supported by an adequate number of clamps in high vibration areas?
4. Are wire bundles containing critical wiring identified by the original manufacturer isolate from other systems?
5. Are stand-offs used to maintain clearance between wires and structure?
6. Are wires supported by suitable clamps, grommets, or other devices at intervals of not more than 24 inches?
7. Are supporting devices of a suitable size and type used with wire / cables to securely hold them in place without damage to wire or wire insulation?
8. Verify that clamps are not pinching the wires?
9. Are open-faced nylon clamps properly installed with tie wraps to secure the wires?

H. Installation inspections: Protection methods-

1. Verify that wires or wire bundles are not chaffing the structure or sharp edges.
2. Verify that wire bundles are not installed in areas of contamination that affects the continued safe operation of the airplane.
3. Are wire bundles that cross-secured together to avoid chafing?
4. Does the installation of wires minimize the exposure to damage by maintenance crews or shifting cargo?
5. Are wires protected in wheel wells and other exposed areas?
6. Are wires protected from moving objects, i.e. control cables, seat motors, actuators, pull rods, bell cranks, etc).
7. Is unused wiring properly terminated with exposed conductors capped (insulated) and secured to bundle?
8. Are grommets installed correctly to prevent chaffing of structure?
9. Are drip loops used to properly drain fluids or condensed moisture?
10. Is there enough slack in the wire to allow follow on maintenance and to prevent mechanical strain?
11. Have wires been protected and has all foreign objects been removed from the wire installation area (i.e. drill shavings, screws, nuts, etc)?
12. Does the wire installation avoid battery electrolytes or other corrosive fluids?
13. If needed, are electrical connectors properly safety wired, especially in high vibration areas?

I. Routing, splicing and locating methods-

1. Are electrical wires adequately routed in metal or opaque conduits especially in high vibration areas?
2. Are conduit ends properly covered to prevent fluids and FOD from entering?
3. Are unused wires ends properly capped, stowed, and secured per the drawing or specification?
4. When splicing wires into one another, is the proper size (gauge) wire being used?

5. Are wire bundles positioned in locations to eliminate or minimize the use as a handhold, step, or support?

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6. Are wires routed above fluid lines, if practicable?
7. Are minimum bend radius being maintained as called out in the design drawing or specification?

J. Existing wiring inspection:

1. Is there any evidence of overheating that can be seen on the existing wiring in the modified area?
2. Do replacement wires have the same shielding characteristics as the original wire, such as shield optical coverage and resistance per unit length?
3. Verify modification and replacement wires are not installed outside the bundle shield.
4. Is there evidence of chemicals (oil, hydraulic fluid, blue water, etc) on existing wires? If so, is the contamination being removed before the new wires are added?
5. Are existing wires and conduits in the modification affected area replaced when:
 - a. They show evidence of being crushed or kinked?
 - b. The shield on shielded wire is frayed and/or corroded?
 - c. Wire shows evidence of breaks and cracks, dirt, or moisture which has damaged the wires?

K. Terminal connections:

1. Are electrical terminal strips mounted in areas so loose metallic objects cannot fall across terminal?
2. Verify dissimilar metals in terminal stack-ups are not used to prevent corrosion? (i.e. cadmium washer between aluminum and copper terminals are used to prevent corrosion)
3. Are individual grounding brackets attached to aircraft structure with a proper metal-to-metal bond?
4. Verify there are no more than 4 lugs and a bus bar per stud.
5. Are aluminum lugs crimped to aluminum wires only?
6. Are certified crimping tools used and is it listed in the specification?

7. Are lock washers used, if required, and are they the correct size?

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8. Are terminal assemblies properly torqued to specification requirements?
9. Are wires stripped to the dimension shown in the process specification?
10. Are terminal lugs deformed or bent beyond specification limits? (Bending straight terminal lugs more than one time causes the lugs to break or crack)
11. Are wire connectors clocked in accordance with the drawing?

L. Wire Marking:

1. Are wire markings legible in size, type, and color?
2. Are wires markings directly on wire or indirectly (sleeve/tag)?
3. Are wires bundles installed so the part markings are readable without removing clamps, ties, or supporting devices?
4. Have wire markings damaged the wire insulation? *Some wire manufacturers use hot markers to ID wire bundles; such methods may damage the insulation exposing the copper conductor.*
5. Are wires identified with the wire type, circuit, and gauge size?

This guide has been developed for used during conformity inspections. These questions/statements are memory joggers that can effect the outcome the conformity inspection. Should the answer be negative it may be necessary to note that on the conformity report, if that subject is applicable to the part in question. The adequacy of drawings and related change records is very important in ensuring conforming products are produced. Inspectors should be aware that not every drawing is reviewed by an FAA engineer or DER. Drawing and specifications may be released with errors, omissions, not enough details or information needed to produce the product. With this in mind the guidance should be used by the inspectors when conformity inspections are accomplish using released drawings and specifications. (Reference FAA order 8100.4 chapter 5)

GENERAL GUIDANCE: Multiple design data approvals should completely and accurately describe the fabrication, assembly, and installation of all portions of the modification. This includes: engineering drawings; material and manufacturing processes, specifications and tolerances; data necessary for fabrication of all parts and assemblies; and installation drawings and/or instructions. Drawings and specifications must be adequate for reproduction of parts and/or installation of subsequent modifications. When drawings or specifications reference Original Equipment Manufacture (OEM) or Supplier parts, accessories and equipment they become part of the design. The data submitted in any process for approval should not contain terms which are subject to various degrees of interpretation such as: adequate, as necessary, as required, room temperature, periodically, etc. Also any tolerances that are required to control the process, should be clearly defined on the drawing or specification.

Use of Shall, Will, Should, and May: “Shall, Will, and Must ” establishes a mandatory requirement. “Should and May” indicates a preferred approach. If the preferred approach is not used the an alternative approach must be able to show that it meets the intent of the design requirements.

CONTROL DRAWINGS: Control drawings (sometimes referred as source specification drawings) are drawings, which show the engineering form, fit, function, and performance requirements for purchased parts of existing designs that were developed by suppliers. Control drawings are used when the design holder allows a supplier to develop a part design without disclosing the exact details of design or divulging proprietary data. The control drawing details must be specific enough so the product can be inspected to determine that the requirements have been met.

Products may require a specification-control drawing (envelope drawing) identifying the product by manufacturer, part number, drawing number, revision level, or any other necessary data. Installation instructions for the modification should include all pertinent information provided by the equipment's manufacturer. The first thing to do is document exactly what is needed in an item for it to function as desired in the intended application(s). After one or more products get qualified, the document itself must be converted to a source control drawing per MIL-STD-100. One of the first sheets must include the standard notes/notices required for source control drawings and should reference the notes or paragraphs with the qualification requirements. The drawing must include the standard "approved sources of supply" table required for source control drawings. Material in specification format can be used in that format (except for the title page) as the following sheets. It all should be reviewed for technical requirements, clarity, etc. if it hasn't been already.

PROCESS SPECIFICATIONS: Process specifications necessary for production of parts should be included in the descriptive data package. These specifications should include all materials, fabrication, and assembly procedures.

- A. Do non-standard specifications include a complete and unambiguous definition of the materials to be used, detailed procedures, critical processes (e.g. temperatures, times, etc.), inspection criteria, rework limits, etc.?

DRAWINGS: Drawing data must describe the manufacture and installation of all parts necessary for the STC modification. Drawings are a major portion of the descriptive data required for a multiple STC. All drawings must be DER or FAA approved prior to FAA acceptance and conformity inspection. See 14 CFR part 21, section 21.33. All part contours, materials, manufacturing operations, dimensions, finish specifications, etc., must be identified either directly on the face of the drawing or by reference to a process specification or other appropriate material. Drawings should not reference general industry standards or specifications that are not definitive enough to produce the part. Drawings must completely define the configuration, material, and production processes necessary to produce each part in accordance with the certification basis of the product. Drawing must not rely on “standard practices” or other general guidance, which has open interpretation. Drawings must not make references to FAA Advisory Circular (AC) 43–13. When performing a conformity inspection the inspector should determine if the part can be produced and inspected using the information on the drawing.

A. Do drawings show:

1. Materials to be used to produce the part, including the material specification number?
2. Material testing criteria and testing procedures?
3. Installed placards or data plates and the process to install them?
4. Instrument markings?
5. Qualification test procedures?
6. Software documents?
7. The fasteners to be used and their location? *(Each rivet, bolt, nut, screw, or other fasteners should be identified by specification/standard part numbers, such as Air Force - Navy Aeronautical Standard (AN), National Aerospace Standard (NAS), and Military Standard (MS), are acceptable)*

B. INSTALLATION INSTRUCTIONS:

1. Are installation instructions sufficient to allow the installer to duplicate the installation without the need for training?
2. Are the installation instructions located in a separate document and is the document identified by a number and an original issue/revision date?
3. Is each page of the instructions controlled and dated?
4. Are installation instructions clear and concise, are they adequate?

D. DRAWING CONTROL.

1. Do drawings show each revision level and identify the changes and approval dates?
2. Does each page of the drawing have a number and revision date?
3. Does the applicant thoroughly check drawings for accuracy and completeness prior to FAA submittal?
4. Does the drawing have a revision control page?
5. Are released drawings reviewed by someone other than the person responsible for drafting the drawings and is there a signature or initials on the drawing checker block?
6. Do drawing numbers follow a logical pattern that can be understood? For instance:

60000	Final Installation.
60100	Major Assembly.
60101	Detail.
60102	Detail.
60200	Major Assembly etc.

7. Does the revision block show the following information?

The identification symbol.
The listing of the numbered or lettered changes (A through Z is followed by AA through ZZ; I, O, Q, and X are never used).
The date.
The nature of the revision.
The authority for the change.
The name of the draftsman who made the change.

E. TOLERANCES / DIMENSIONS:

1. Are standard tolerances specified?
2. Are standard manufacturing tolerances noted on the drawing, such as: XX.XXX inches \pm .010; XX.XX inches \pm .03; XX X/X inches \pm 1/16; with tolerances which differ from these standards called out on the face of the drawing, (i.e., .625 + .001, - .000)?
3. Are unnecessary narrow and/or broad tolerances being avoided to prevent the manufacturing person from misinterpretation?
4. Does the drawing use ANSI Specification Y14.5 for critical tolerances?
5. Does the drawing show all dimensions necessary to produce the part? (Note: Some manufacturers use un-dimensioned drawings)
6. If un-dimensioned drawings are used are the critical characteristics including the inspection requirements shown in the design data?
7. Are dimensions complete so “no” adding or subtracting is required for a needed dimension?
8. Are tolerances to "fine" or to "coarse," which might impact the duplication accuracy or operation? (Each production part should meet or exceed the established tolerances)
9. Are proper clearance and interference fits shown on the drawing?
10. Are mechanical movement clearances laid out on the drawing for interference positions at the extreme limits of travel?
11. Are the dimensions and views sufficient in describing the part or assembly, including a full sectional view of assembled parts?
12. Are decimal dimensions being used correctly?
13. Are tolerances that are different than the title block clearly noted in the area of the part being affected?

F. MASTER DRAWING LISTS: MDLs are the top drawing that describes the complete type design approved by the FAA and they must be complete and accurate.

1. Does the Master Drawing List (MDL) include:

Installation instructions	Any engineering change orders in effect
Process specifications	Date prepared
Drawing or document numbers	Approval dates of all material
Revision levels	

2. Is the Master Drawing List (MDL) accurate?

G. INSPECTION CRITERIA / INSTRUCTIONS / PROCESSES:

1. Do critical casting drawings include 100% inspection by visual, radiographic, and magnetic particle or penetrant inspection or approved equivalent nondestructive inspection methods? (Ref 25.621, 23.621)
2. Are process specifications for plating and inspection, as well as the installation instructions, included in the drawing?
3. Are material specifications shown on the drawing for producing the parts? Is it clear what material specification is used to produce each part on the drawing?
4. Are finish specifications shown on the drawing for each part and assembly?
5. Is the process specification indicated, such as: cadmium plate, zinc chromate coat, anodize, shot peen, tumble, sand blast, vinyl wash, epoxy, etc? (*Zinc chromate and vinyl wash denote primers; final finishes should be specified as well, e.g. enamel, epoxy, lacquer, dope, etc*)
6. Are detail parts and stock sizes shown i.e. screws, bolts, pins, rivets, etc.?
7. Does the drawing show the welding specification and welding method for welding materials and parts to one another?
8. Are parts being inspected to a dimensioned drawing if so is the drawing scale correct and are the instruction clear?
9. Are plastic vellum full scale drawings used for inspection maintained in a environmentally control area?

H. ILLUSTRATIONS / NOTES / LAYOUT:

1. Is each part shown and correctly illustrated on the drawing with all necessary views?
2. Are views with hidden lines avoided when possible? (*Dimensions to hidden lines should not be used*)
3. Are parts indicated by a noun, followed by a description of what they do, and where they are located on the aircraft?
4. Are general notes clear and unambiguous for so manufacturing personnel can produce the part?
5. Does specific notes listed under the general notes column that apply to particular parts, areas or operations, shown with a triangle or other symbol, and is it clear where the specific notes should be applied?
6. Are the drawing lines per industry standards so the manufacturing person can understand it (*i.e. hidden line, center line, cutting plane, dim line, etc.*)?
7. Are at least two detail part views shown on each drawing?
8. Are opposite part views shown on the drawing and is it clear which side of the airplane the view is shown?
9. Does the drawing table of contents and revision record showing the latest change for each sheet of the drawing?
10. Is the grain direction shown (arrow) on forging, or other critical part drawings to allow the part to be oriented in the machine correctly?
11. Are tooling points and datum planes shown on the drawing for part layouts to assist production?
12. Are surface conditions for roughness shown for castings?
13. Does the drawing show the edge distance for fasteners in structural areas?
14. Does the drawing illustrate the safety wire method for fasteners, connectors, adjustable connections, etc?
15. Are torquing requirements for fasteners shown on drawings?
16. Are special techniques, (i.e., structural shot peening, etching, etc.) shown on major and/or critical parts?

- 17. Are there clear requirements for welding, brazing, and normalizing of major and/or critical parts?
- 18. Are process specifications for bonding, gluing, sealing and finishing of major and/or critical parts on the drawing?
- 19. Are adequate drainage provisions shown on drawing to prevent the accumulation of fuel, water, hydraulic oil, etc?
- 20. Are self-locking nuts used on any bolt subject to rotation during aircraft operation clearly shown on the drawing?
- 21. Do drawings provide requirements to inspect flight control systems (i.e.. bell cranks, push-pull tubes, chains, cables, operating cylinders, jackscrews, etc.) for binding conditions and interference clearances?
- 22. Where cable systems are used, do drawings provide for the visual inspection of fairleads, pulleys, terminals and turnbuckles?
- 23. Does the title block present the following information?

a	A drawing number to identify the print for filing purposes and to prevent confusing it with other prints.
b	The name of the part or assembly.
c	The scale to which it is drawn.
d	The date.
e	The name and address of the applicant and firm.
f	The name of the draftsmen, checker, and person approving the drawing.
g	The aircraft model, detail or assembly it is to be used on.
h	The drawing number of the next higher assembly.

- 24. Does the drawing have a Bill Of Material (BOM) block and does it present the following information?

a	The number of the part or assembly.
b	The name of the part of assembly.
c	The material from which the part is to be constructed.
d	The quantity required.
e	The source of the part or material.

I. DRAWING CHANGES / APPROVALS:

1. Are Engineering Orders (EO), Engineering Change Notices (ECN), etc, shown on the drawing?
2. Has the design engineer signed the drawing block before releasing the drawing?
3. Are there more than “5” engineering orders released before incorporation into the drawing? (Acceptable industry standard is no more that 5 design changes allowed before incorporation into the drawing. Too many un-incorporated design changes will lead to confusion in manufacturing and inspection.)
4. Is there only one page to an EO, ECN, etc? (Note: Some manufacturers have been known to have as high as 30 pages per EO, 30 x 5 = 150 pages of drawing changes. This leads to confusion and complexity in manufacturing a product.)
5. Does the drawing contain appropriate symbols to designate that the drawing has been changed or revised?

J. Drawing Requirements for Part Identification Marking.

1. Are part marking requirements on drawings clear about content, method of application (e.g., stamp, stencil, bag, or tag), and materials?

K. Tags and Plates.

1. Are tags and plates defined separately as parts by an applicable specification, standard, or drawing?
2. Are the requirements for attaching an identification plate specified on the assembly drawing?
3. Does the drawing describe what information is to be included on the identification plate or tag when it is installed on the part or assembly?

L. Drawing Notes - Contents.

1. Drawing notes are pertinent data given in word form and used to complement the delineation of other given data.
2. Are the drawing notes concise, grammatically correct statements that are not left open to interpretation?
3. Are arrangement of notes interpreted as an order of precedence, or sequence in manufacturing or assembly if so is it specified as such on the drawing?
4. Do the general notes apply to the entire drawing or associated list if not should it?

5. Are local notes located at the specific area or point of application and do they only apply only to the areas?
6. Are flag notes identified with a flag note symbol including the note number and is it shown at each point of application on the drawing?
7. Are general notes identified numerically or alphabetically to prevent misinterpretation?
8. Are fag note and other nonstandard symbols defined on the drawing.
9. Are reference made to a method, identified requirement, class, grade, or type clear to manufacturing personnel?
10. Are parts and assemblies associated with special items and processes shall be identified?
11. Do notes include requirements for submission, approval, or distribution of data, reports, or plans? If so is it apparent about what is being required?
12. Do Flag notes symbols conflict with or resemble other symbols?

M. Drawing Verification and Approval

1. Does the drawing have verification and approval signature blocks and are they signed?

N. Use of Specifications and Standards

1. When specifications and standards that do not completely fulfill the design requirements of an item, do the drawings specify the exact requirements of the specifications and standards and the variations necessary to produce the item, in lieu of preparing new design data?

O. CAGE Codes.

1. Are industry cage codes used and are they correct?

P. Graphics

1. Are graphic symbols, designations, letter symbols, and abbreviations explained on each drawing or referenced to an explanatory document?
2. Does the same title appear on all sheets of a multi-sheet drawing?
3. Are ambiguous nouns (one which designates several classes of items) being used?
Example:

ACCEPTABLE	VS	UNACCEPTABLE
SOLDERING IRON	VS	IRON, SOLDERING
CIRCUIT CARD ASSEMBLY	VS	ASSEMBLY, CIRCUIT CARD

4. If so, this may leave to confusion on the manufacturing floor. Are the words in the following examples distinguished by additional modifiers indicating their location, relative position, forms, types, dimensions?

Apparatus – What is an apparatus?	Machine - Does this mean machine the part or does this mean use a particular type of machine?
Equipment - What equipment is to be used?	Tool - What is the name of the tool?
Plant – What manufacturing plant?	Device – What is the device and how do you use it?
Assembly - How do you know what is an assembly?	Mechanism?
Group - What is a group, group of what quantity?	Unit ?
Assortment - What is an assortment?	Element ?

Q. Symmetrically Opposite (Mirrored) Parts

1. Are symmetrically opposite parts described clearly on the drawings?
2. Is each part identified by a suffix identifier? (Example: “747362-101 SHOWN” and “747362-102 OPPOSITE” or “-1 SHOWN” and “-2 OPPOSITE.”)

R. Identification of Protective Treatment

1. Are protective treatments identified on the drawing or parts list?